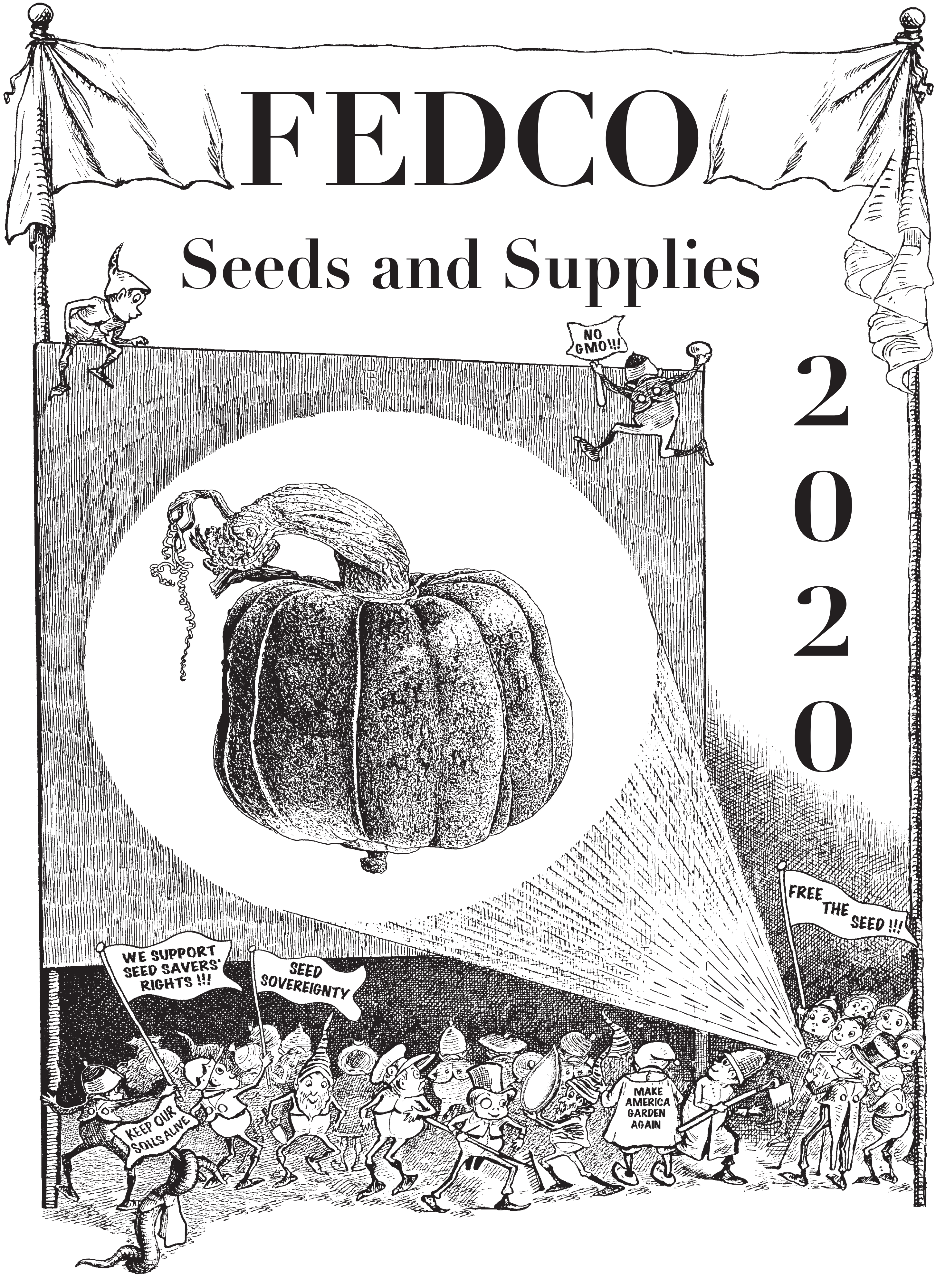
FEDCO

Seeds and Supplies

2020


NO GMO!!!
FREE THE SEED !!!
WE SUPPORT SEED SAVERS' RIGHTS !!!
SEED SOVEREIGNTY
KEEP OUR SOILS ALIVE
MAKE AMERICA GARDEN AGAIN

FEDCO·SEEDS
Garden · Farm · Orchard

Welcome to Fedco's 42nd Year!

"May you live in interesting times."

Whether construed as a blessing or a curse, we cannot deny we live in just such a time, with the clamor of change all around us—climate change, cyber change, social change.

And times are interesting indeed in AgTech: attempting to respond to a new green revolution, the corporate media vies for our attention with catchy futuristic buzzwords. We hear of "hyper-local" veggies grown underground in a WWII air raid shelter in England. Or in Boston, veggies grown "in the box," referring to one of many sterile environments where plants are grown without soil or sun and intensively managed, often from off-site, to avoid agronomic stress. We ponder the "impossible burger," a fake meat formulated with genetically engineered yeast into a burger that "bleeds." AgTech's solution to bee pollinator die off, instead of banning glyphosate, is the invention of pollinator drones.

Expensive agricultural stunts fascinate rather than solve real problems, and high-value trait-patented designer foods titillate rather than nourish and sustain life.

Within these pages we present another vision for the future of agriculture, with interviews from people on the front lines of the back 40—hard-working people, who are farmers, educators and organizers approaching the changing world with clear-sighted community-driven solutions. We spoke with folks who listen to the whisper of dried leaves and the conversations of neighbors, who observe the hawk surfing the air currents overhead along with the absence of spring moths in the sap bucket, who foster the return of spent life to the soil to nurture the long haul.

May something of what they say spark your winter dreaming for the spring to come. And may your farm or garden this year be a sanctuary, vital roots in a living soil that feed you and your community, as we grow our resilience, inventiveness and hope—now and for a time to come.

– Nikos Kavanya

fedcoseeds.com

Questions or concerns?

Email: questions@fedcoseeds.com

Call: (207) 426-9900

Phone hours:
January - mid-May:
Monday - Friday, 9am–4pm EST
Mid-May - December:
Tuesday - Thursday, 9am-3pm

Catalog Request Line:
(207) 426-0090

Send mail orders to:
Fedco Seeds
PO Box 520 Clinton, ME 04927

Where Is Everything?

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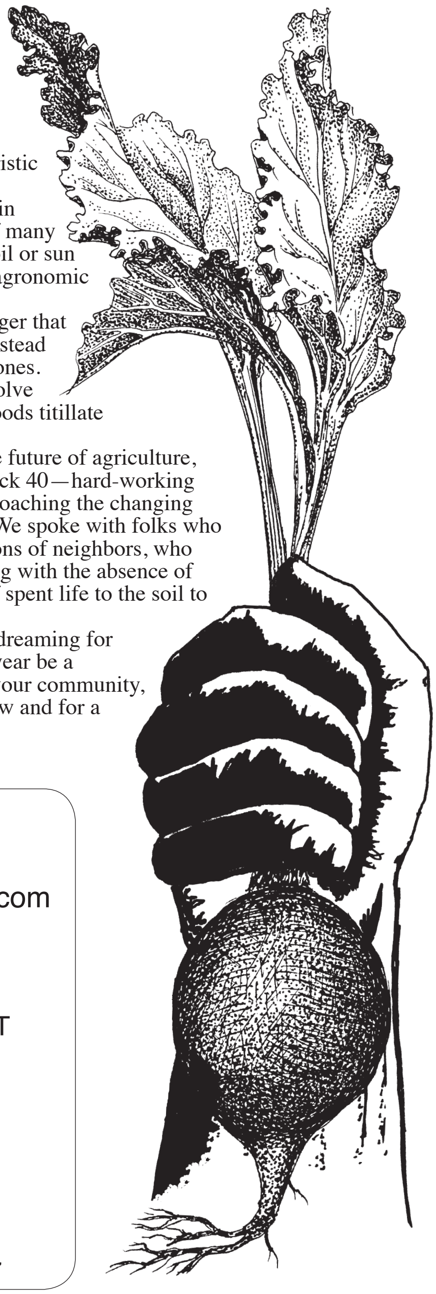
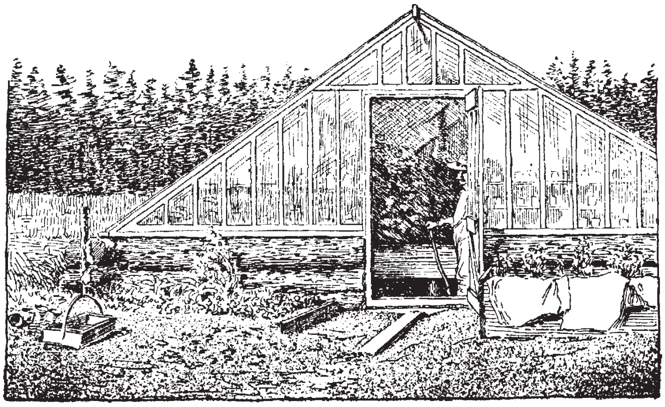


Ordering Deadlines and Shipping Schedules

Order online at fedcoseeds.com. For mail, use forms on pages 161-165.

Products	**Page**	**Ordering Deadlines**	**Shipments**
Vegetable, flower and herb seeds	items on pp 5-105	October 31, 2020	begin around January 2
Seed potatoes, onion sets & plants, sweet potato slips, ginger, turmeric	items on pp 110-116	April 6 (ginger/turmeric: 2/24)	begin in April (ginger/turmeric: early March)
Cover crops, soil amendments, tools, supplies and books	items on pp 118-159	none	year-round
Our **Fedco Trees** catalog, available in October, lists **spring-planted fruit trees, berries, shrubs & perennials.**			
Our **Fedco Bulbs** catalog, available in June, **lists fall-planted flowerbulbs, perennials and garlic.**			



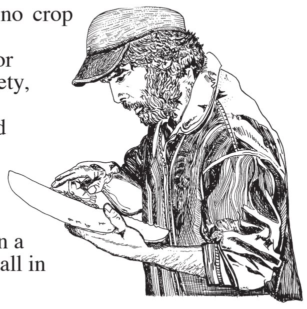
The Weather and Crop Failures

Last year when we interviewed Karl Sutton, one of our seed growers, he said his biggest challenge as a grower is the inconsistency of weather.

This year has been the worst for crop failures in the 20 years Nikos has been coordinating our seed program. One grower in Idaho lost his entire bean production—in acres—by both a late frost and then an early one. He was growing four varieties for us. He knew replanting was a gamble, but did it because he didn't want to let us down. His neighbor, growing a different bean, is similarly affected. Squash in Maine were besieged by squash bugs. The cool wet season decimated lettuce crops—some are still standing in the fields but not ripening; others got taken out by rampant disease. As of press time, nine lettuce crops are definite failures, in locations throughout the country. Peppers and tomatoes fared poorly, too, with the difficult weather conditions. Our first crop failure this year was Grandma Mary's tomato, which died after a hard late-spring frost. Echinacea went down to a sunflower moth infestation. The list goes on.

Fedco is different from more corporate seed companies. A good percentage of our seed comes from small growers: dedicated, hard-working, industrious folks. The seed they provide is likely the backbone of what you grow in your garden. When a seed crop fails, in many cases, there is no crop available elsewhere.

So if you note the unavailability or limited availability of a favorite variety, please pause at your inconvenience or annoyance, and recognize the hard work a farmer has put in for no recompense. Our growers lost more than money; they lost the satisfaction of providing us all with seed, which tends to weigh heavily in a grower's sense of fulfillment. We're all in this together.



NEW Seed Varieties for 2020

OG = Organic!

page	item	
10	464	Chiba Green soybean OG: Beer Friend fell off the barstool!
13	3308	Covina broccoli OG: Farewell Fiesta; come hither Covina!
13	3307	Millennium broccoli: Worth moving back in with your parents for!
14	3335	Speedia brussels sprout: Bred to break the sound barrier!
15	3370	Murdoc cabbage: Don't worry, no talking heads here!
15	3399	January King cabbage OG: Keeps a cool head in times of frost warning!
17	2094	Aranka carrot: I ranka this early Nantes-type #1!
17	2035	Istanbul carrot: Itching for an incendiary Imperator?
18	2062	Naval carrot OG: Taste the essence of fall with Naval!
18	2070	Newall carrot: We knew all y'all needed a storage carrot—try Newall!
19	3648	Monarch celeriac OG: Re-enact *The Crown* in your root cellar!
22	660	Nirvana supersweet corn: Smells like *Zea* spirit!
23	1300	Lagos cuke: A mega-vine with 17.5 million cukes!
29	3039	Silverado swiss chard OG: A mess of greens for the long haul!
32	3230	Red Dragon chinese cabbage: This dragon is fussy, but worth the risk!
33	3219	Yukina Savoy mustard green OG: Snow vegetable fortune endure!
43	978	Home Run melon: This eastern shipper–type knocks it out of the park!
43	982	Hearts of Gold melon OG: The search is over, Neil!
44	960	Courier melon: Delivers sweet, sweet flavor with every bite!
45	964	Uncle Paul melon: Because Uncle Sam let us down!
46	1050	La Bestia watermelon: A Beast to best Sangria!
49	2492	Red Mountain onion: Scaling greater onion heights!
53	3732	Violet Sparkle pepper OG: Nonpareil purple pepper perfection!
55	3758	Karlo pepper OG: Paprika—everyone's doing it!
55	3827	Dulcinea hot pepper OG: Quixotic breeding has come to fruition!
59	2500	Beaujolais spinach OG: You'll want to drink in its beauty!
61	1405	Green Machine zucchini OG: Cranks out uniform zukes!
61	1407	Modena zucchini OG: For fast & furious zuke production!
71	4078	Mary Reynolds tomato: Grandma Mary croaked, but this Mary is OK!
81	4471	Flowering Thai basil: A *phuang malai* to adorn your herb garden!
91	5000	Double Take columbine OG: We are not responsible for whiplash injuries!
92	5051	Ballerina Mix datura OG: A lethal addition to your end-times garden!
93	5098	Lorenziana Double Mix gaillardia: Butt-hardy annual!
103	5930	Sussex flax OG: Seed smuggled from Norland Park by the Dashwoods!

BACK in 2020

7	247	Montpellier bean OG: A bean with more consonants than the VT capital!
9	362	Dolloff pole bean: Dollofully beany!
9	295	Blue Coco pole bean OG: We'll take chocolate in any form!
10	323	Packers lima bean: Get in the lima game—no risk of brain injury!
10	492	Sayamusume soybean OG: Amuse me, don't sue me!
23	1340	Marketmore 86 cuke OG: Rivaled Ferris Bueller in popularity in 1986!
27	4303	Burbank barley: Bless Burbank, the barley breeding extraordinaire!
36	3442	Cascade Glaze collard: Shimmers like a melting ice cap!
46	1046	Sunsweet watermelon: Sweet as a 27,000,000° ball of fire!
50	2426	Siegfried Frost leek OG: No Roy, no tiger, but still a marvelous leek!
71	4091	Lillian's Yellow tomato OG: Lost the beauty contest; won our hearts!
73	4103	Gardener's Sweetheart tomato OG: Welcome home, darling!
85	4683	Spilanthes: The herb that makes you drool!
102	5675	Siberian Wallflower: This orange orchard-companion isn't shy!

Fedco's Commitment to Transparency and Seed Savers' Rights

Some seed varieties have intellectual property (IP) restrictions that we must agree to in order to offer the seeds. These restrictions challenge some or all of the four seed freedoms (see page 4). Such restrictions come in several forms:

- Utility patents or trait patents restrict all four seed freedoms. **Fedco does not knowingly sell trait- or utility-patented varieties.** See an explanation of our opposition on page 37.
- Licenses that allow us to produce proprietary seed in exchange for royalties, but forbid using it for selection and breeding purposes, restricting the fourth freedom. Fedco currently offers two such varieties, under license from Cornell. These are 1318 Silver Slicer cucumber (pg 24) and 3704 Peacework pepper (pg 53).
- The Plant Variety Protection Act (PVP), a form of limited patent protection that restricts the freedom to sell or share with others, but allows seed saving for own use or breeding purposes. We label all the PVPs in their descriptions.

Although a few multinationals are aggressively pursuing protection of IP, many other companies are labeling IP only to guard against having their breeding appropriated by those bigger companies, and have no current intentions of litigating against home gardeners for saving seed.

Reading our variety descriptions:

Key to symbols, abbreviations and unique Fedco features

Wonderland Pumpkin - Organic World's first inflatable pumpkin, from CR's Fanciful Favorites breeding program, developed especially for fair exhibitions. Press a wart on the stem of the squash and it shrinks to the size of a small tomato. Load. Upon arriving at exhibition hall, reactivate the wart and watch the pumpkin expand to its former size and BEYOND! Susceptible to powdery mildew. *Caution: may not perform well under low ceilings*. **OSSI**. **Breeder Royalities.** ✿ ①

7477 ***A***: *1/8oz, $2.02*
B: *1/4oz, $4.08*
C: *1/2oz, $16.64*
D: *1oz, $276.88*

Cultivar name

Organic after name means entire lot is certified-organic seed. See page 104 for more info and a full list of organic varieties.

ECO after name means entire lot is sustainably grown seed.

BD after name means entire lot is biodynamically grown seed.

Item number and packet size:
A & B sizes are big enough for most home gardeners.

OSSI and the Four Seed Freedoms

Fedco is proud to be among the 66 seed-company partners of the Open Source Seed Initiative (OSSI), an effort by a consortium of seedsfolks, farmer-breeders, academics and others to keep as many seed varieties as possible in the public domain, unfettered by privatizing restrictions. (See CR Lawn's essay "In Defense of a Seed Commons" from our 2016 catalog at fedcoseeds.com/seeds/seed_ethics.htm)

The OSSI Pledge

OSSI is signing up as many breeders and seed companies as possible to pledge to keep as many varieties in the Commons as possible. Fedco currently carries 43 OSSI-pledged varieties designated by the OSSI logo in our catalog. We ask each buyer of these OSSI-pledged seeds to uphold this open-source agreement:

> You have the freedom to use these OSSI-pledged seeds in any way you choose. In return, you pledge not to restrict others' use of these seeds or their derivatives by patents or other means, and to include this Pledge with any transfer of these seeds or their derivatives.

The Four Seed Freedoms

OSSI opposes intellectual property (IP) provisions that restrict what OSSI has identified as the four seed freedoms:

1. The freedom to save or grow seed for replanting or any other purpose.
2. The freedom to share, trade, or sell seed to others.
3. The freedom to trial and study seed and to share or publish information about it.
4. The freedom to select or adapt the seed, make crosses with it, or use it to breed new lines and varieties.

Who supplies our Seed?

Know where your seed comes from!

① Small seed farmers including Fedco staff.
② Family-owned companies or cooperatives, domestic and foreign.
③ Domestic and foreign corporations not part of a larger conglomerate.
④ Multinationals not to our knowledge engaged in genetic engineering.
⑤ Multinationals who are engaged in genetic engineering.
⑥ Syngenta, manufacturer of neonicotinoids.

A unique Fedco feature, these codes provide information about the source(s) of each seed variety. Varieties with more than one supplier may have two or more codes. We code according to our best information at press time. When seed is short we must sometimes change suppliers later in the season. With notable exceptions, we generally choose varieties based on their merits rather than on our supplier preferences. We do not offer genetically engineered varieties, although we purchase from corporations engaged in genetic engineering. Use the supplier codes to help you make your own choices about whom you are supporting and which varieties are best for your garden or farm.

Codes and Abbreviations:

❆ indicates cold-hardy through at least part of Maine winter. See p. 28.

✿ = a variety especially attractive to pollinators.

❧ = a variety introduced by Fedco followed by the year first offered.

Ω = a variety grown and supplied by the plant breeder.

PVP = Plant Variety Protected. Unauthorized propagation of the seed is prohibited. The use of PVP in the catalog is for information and in no way constitutes an endorsement by Fedco of plant patenting.

AAS = All-America Selection.

Breeders and Keepers of Seed

Indigenous Royalties

In 2018 we began paying royalties in recognition of the Native breeders and Seed Keepers of the past, whose varieties have endured and continue to sustain us here on Turtle Island. We are indebted to those keen eyes, practiced hands and seed relationships, so often overlooked. Fedco's catalog is rife with references to probable Native provenances.

We will continue to pay royalties, this year for 14 varieties, that either hold a Wabanaki (from this bioregion) story or that have a tribal designation in the name. These royalties will go to the Nibezun Project here in Maine. According to nibezun.org,

> The Nibezun Project will acquire, protect, and steward an endangered parcel of culturally significant land on the Penobscot River in Passadumkeag, Maine. This 85 acre parcel provides the only land access to the Penobscot Nation's treasured Olamon Island and is an historic and current ceremonial ground and gathering place. In addition to the land's palpable heritage, natural beauty and abundant wildlife, existing facilities on site will provide an ideal home for the Coalition's diverse programming, supporting its mission of preservation, cultural exchange and educational outreach. By working with this sacred land and its cultural traditions, the Nibezun Project aims to foster the Seven Seeds of Healing both within the Wabanaki community and beyond, and in so doing become a catalyst to heal the greater environment and recreate the symbiotic relationship with Mother Earth enjoyed by the ancestors of the Wabanaki People.

Last year's royalties came to $668.07. With an additional $1,188.71 from customers who donated their refunds, the check to the Nibezun Project totaled $1,856.78.

Breeder Royalties

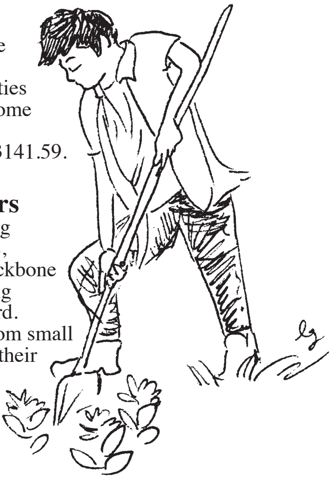
For many years Fedco has been proactive in paying royalties to the current generation of "backyard breeders" whose varieties we purchase from other sources. We recognize the value of their work and appreciate that they are keeping these seeds in the Commons, available to all.

The label **Breeder Royalties** at the end of a variety description indicates we pay the independent breeder royalties because he or she is not receiving income from our purchase of the seed.

Last year these royalties totaled $3141.59.

Ω Independent plant breeders

Continuing a long tradition of adapting varieties to local tastes and conditions, independent plant breeders are the backbone of culture. For the most part eschewing plant patents, their work is their reward. Fedco is committed to buying seed from small breeders to give economic support to their work. Though we can find cheaper seed elsewhere, we prefer not to compromise on quality or ethics. We hope you agree—by purchasing seed with the Ω symbol.



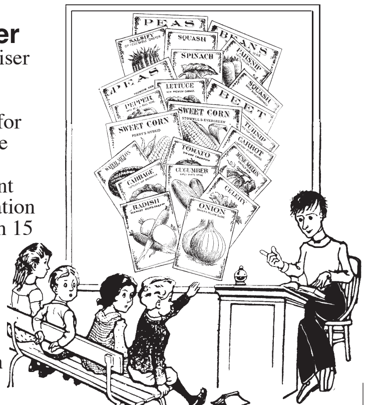
Sell Seeds For a Fundraiser

Tired of candy sales and want a fundraiser with a wholesome message?

We select 25 popular easy-to-grow varieties and customize an order form for each participating group. Then you take orders from your community!

We ask that you make a commitment to sell at least 100 packets. The application deadline (intent to participate) is March 15 and the order deadline is April 30.

We'll work with any school, PTA or nonprofit. Contact us by email at fundraiser@fedcoseeds.com. Please, no calls. For complete guidelines visit **fedcoseeds.com/seeds/fundraiser.htm**



Fedco's Packet Rack Program for Retailers

Portable cardboard packet racks suitable for all our A-size packets. The top slots hold about 4 packets of peas, beans or corn; all slots hold at least 10 packets of the other crops. Dimensions for the 28-slot rack are 14" deep, 20"wide, 62" high. For the 56-slot rack 14x30x64". Each collection has 28 or 56 varieties and either 5 or 10 packets of each variety.

Popular Favorites 28 best-selling varieties.
20 vegetables, 4 herbs, 4 flowers; 6 organic.
5951 ***A****: 5 of each with rack, $307.00* ***B****: 10 of each with rack, $579.00*
C*: 5 of each, no rack, $272.00* ***D****: 10 of each, no rack, $544.00*

Popular Favorites 56 best-selling varieties.
42 vegetables, 7 herbs, 7 flowers; 17 organic.
5952 ***A****: 5 of each with rack, $608.00* ***B****: 10 of each with rack, $1181.00*
C*: 5 of each, no rack, $573.00* ***D****: 10 of each, no rack, $1146.00*

All Certified Organic 28 best-selling organic varieties.
23 vegetables, 2 herbs, 3 flowers.
5953 ***A****: 5 of each with rack, $359.00* ***B****: 10 of each with rack, $683.00*
C*: 5 of each, no rack, $324.00* ***D****: 10 of each, no rack, $648.00*

All Certified Organic 56 best-selling organic varieties.
42 vegetables, 7 herbs, 7 flowers.
5954 ***A****: 5 of each with rack, $716.00* ***B****: 10 of each with rack, $1397.00*
C*: 5 of each, no rack, $681.00* ***D****: 10 of each, no rack, $1362.00*

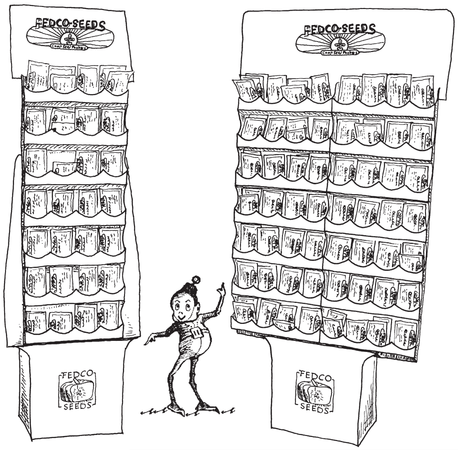
All Heirlooms 28 heirloom varieties.
24 vegetables, 1 herb, 3 flowers; 10 organic.
5955 ***A****: 5 of each with rack, $315.00* ***B****: 10 of each with rack, $595.00*
C*: 5 of each, no rack, $280.00* ***D****: 10 of each, no rack, $560.00*

All Heirlooms 56 heirloom varieties.
44 vegetables, 4 herbs, 8 flowers; 20 organic.
5956 ***A****: 5 of each with rack, $624.00* ***B****: 10 of each with rack, $1213.00*
C*: 5 of each, no rack, $589.00* ***D****: 10 of each, no rack, $1178.00*

How racks work:

- Rack orders qualify for our volume discounts, as do re-orders of $50+.
- Rack orders may be combined with individual packet orders to reach higher discount levels.
- Packets are our regular design. We will furnish samples upon request.
- Pre-order, prepay.
- Free shipping.
- All re-orders will be advanced to the front of the line for fast service.
- No returns.
- Varieties our choice; no substitution requests. You can download the list of specific items in each rack from our website, or contact us for a paper copy.
- We will make substitutions if we run out of any items in our selection.
- Re-order requests will be honored until June 1.
- Retailers remove packets from racks by July 31; don't sell stale seed.
- No suggested retail. Determine the profit margin you need.
- Questions? email questions@fedcoseeds.com.

For a list of specific items in each rack, download from our website at fedcoseeds.com or contact us for a paper copy.

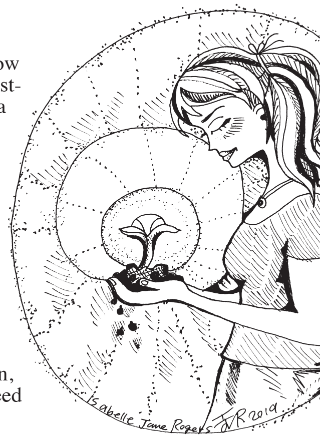


SEED COLLECTIONS

Overwhelmed by choices? Choose a collection. We'll select the varieties, and you'll save about 10% off individual packet prices, 20% for the Freed Seed Collection.

Bee and Butterfly Pollinators Collection Help feed the bees and butterflies and attract pollinators to your garden. Contains 10 packets. Our choice among the following: Phacelia, poppies, calendula, nasturtium, cilantro, borage, tithonia, dill, Hon Tsai Tai, butterfly weed, anise hyssop, Bachelor Button mix, sunflowers or cosmos. ✿
5931 ***A****: 10 pkts, $15.00*

Chicken Scratch Clucktion A collection of quick-growing tasty greens for chickens. Grow a patch for them to graze on, or for you to clip and feed to them—or yourself. Contains 6 packets including: lettuce mix, kale mix, collards, swiss chard, Yokatta Na or Senposai, and spinach.
5932 ***A****: 6 pkts, $10.00*



Container Garden Collection
A selection of varieties that will grow well in small spaces, whether a waist-high growing box, a raised bed, or a window box. Contains 10 packets including: lettuce mix, greens mix, cherry tomato, sweet pepper, cucumber, parsley, basil, scallions, pac choi, and trailing petunia or nasturtium.
5933 ***A****: 10 pkts, $20.00*

Freed Seed Collection
A diverse selection of OSSI-pledged varieties (see p. 4). Will include lettuces, greens, winter squash, leeks or onions, watermelon, calendula and more. Support the Seed Commons!
5934 ***A****: 8 pkts, $16.00*

Garden Start-up Collection Easy-to-grow varieties for spring through fall harvest. Includes garden tips for beginners. Contains 7 packets including: bush green beans, zucchini, cucumber, lettuce mix, calendula, carrot and sweet basil.
5935 ***A****: 7 pkts, $10.00*

Kids' Garden Collection Fun and playful easy-to-grow varieties to encourage young gardeners. Contains 8 packets including: Mammoth sunflower, Scarlet Runner bean, Calico popcorn, large pumpkin, purple or red carrots, gourd mix and nasturtiums.
5937 ***A****: 8 pkts, $15.00*

The Kitchen Herb Garden A collection of 7 classic culinary herbs. Basils, parsley, cilantro, dill and more to add flavor to every dish. Grow them in pots, raised beds or in your kitchen garden.
5938 ***A****: 7 pkts, $12.00*

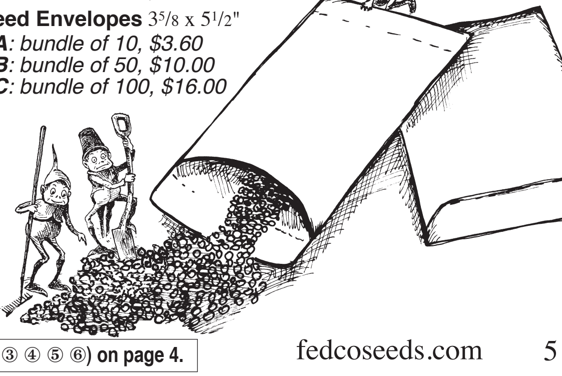
Microgreens Collection Grow trays of tasty vibrant greens all year round. Contains 8 packets including: kale, collards, broccoli, purple basil, cress, arugula, mustard and spinach.
5939 ***A****: 8 pkts, $12.00*

Edible Flower Collection A cheerful collection of edible flowers. Grow them to add to salads, vases, or to add color to your garden. Contains 6 packets: our choice of calendula, borage, heartsease pansy, nasturtium, Gem marigolds, bachelor buttons, anise hyssop or Hon Tsai Tai.
5936 ***A****: 6 pkts, $10.00*

Seed Envelopes Our reclosable seed envelopes, plain white with no logo. Use them for seed saving, repacking bulk seed, or tucking away treasures. Two sizes.

Seed Envelopes $3\frac{1}{4}$ x $4\frac{3}{4}$"
5959 ***A****: bundle of 10, $2.80*
B*: bundle of 50, $9.00*
C*: bundle of 100, $14.00*

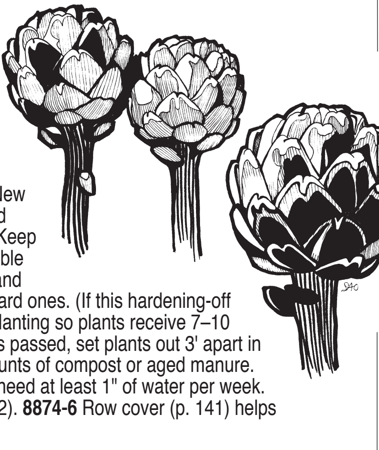
Larger Seed Envelopes $3\frac{5}{8}$ x $5\frac{1}{2}$"
5960 ***A****: bundle of 10, $3.60*
B*: bundle of 50, $10.00*
C*: bundle of 100, $16.00*



ARTICHOKE

Cynara scolymus

~20 seeds/g. 0.5g packet contains ~10 seeds.



Culture: The artichoke is biennial, requiring trickery in the North to induce production of its edible flower buds. Follow these instructions for vernalization:

Start seeds indoors in mid-February and grow on at around 70° during the day and 50° at night. When night temps no longer drop more than a few degrees below freezing (mid-April to mid-May in New England), move seedlings to an unheated greenhouse or cold frame to harden off. Keep them well ventilated and as cool as possible without freezing. Plants (both seedlings and mature) can tolerate light frosts but not hard ones. (If this hardening-off regimen is not feasible, try to time transplanting so plants receive 7–10 days of 45–50°.) After danger of frost has passed, set plants out 3' apart in rows 4' apart. Incorporate generous amounts of compost or aged manure. A balanced fertilizer is beneficial. Plants need at least 1" of water per week. Mulch with hay or **8421** IRT mulch (p. 132). **8874-6** Row cover (p. 141) helps hasten maturity.

Imperial Star - Organic (120 days from transplant) Open-pollinated. A harvest of beautiful artichokes is well worth the fuss of persuading this Mediterannean biennial into behaving like an annual. The plant-breeding efforts of Wayne Schrader and Keith Mayberry of California Cooperative Extension made this delicious flowerbud accessible to northern gardeners in 1991. In New England, most plants will bear 2–4 chokes during cool fall weather. Northwestern growers report 6–12 chokes per plant! Left to bloom, the buds open into massive otherworldly blue flowers that dry well. Overwintering with care is possible in mid-Atlantic states. PVP expired. *Caution*: May not produce in Zone 4 and colder. ①

3608 ***A***: *0.5g, $2.40* ***B***: *1g, $4.00* ***C***: *4g, $9.00*
D: *28g, $40.00*

Arugula: see Greens, p. 28.

BEANS

Phaseolus vulgaris

All beans are open-pollinated.

Culture: Tender, will not survive frost. Plant seeds 3–4" apart in rows 24–30" apart after all danger of frost has passed. Legumes have moderate fertility needs and can fix their own nitrogen. Excessive nitrogen may induce some bush varieties to develop vines in moist hot weather. White-seeded beans usually don't germinate as well as dark-seeded. **Minimum germination soil temperature 60°; optimal range 60–80°.**

Diseases:

ANTH	Anthracnose	NY 15	NY 15 Common Bean Mosaic Virus
BBS	Bacterial Brown Spot		
CBMV	Common Bean Mosaic Virus	PM	Powdery Mildew
CTV	Curly Top Virus	PMV	Pod Mottle Virus
DM	Downy Mildew	R	Rust
HB	Halo Blight		

White mold *Sclerotinia sclerotiorum* affects more than 300 plant species. In beans, low humidity, good air circulation and wider spacing, both between plants and between rows, reduce the likelihood of this soil-borne infection.

Days to maturity are from date of direct seeding.

BUSH BEANS

Avg 180 seeds/2 oz packet. 2 oz packet sows 25 ft; 1 lb, 200 ft. Seed sizes vary.

Pick frequently for maximum yields, but avoid harvesting or disturbing foliage in wet weather to prevent spread of fungal diseases.

GREEN BUSH BEANS

Provider (50 days) For highest early yields—even under adverse conditions—and rich beany taste, nothing provides like Provider. Noted for its concentrated sets of round 5–5$^{1}/_{2}$" pods. "There is no substitute for Provider beans," says Chris Carlin of Hyde Park, VT. Also excellent for canning and "my choice for freezing and dilly beans," says Elaine Carlson of Cape Porpoise, ME. Resilient: Provider and **225** Royal Burgundy re-flower repeatedly after heavy pickings followed by rains. Came in one day ahead of Contender for earliest in our observation plot. Our best-selling variety in the catalog year after year. Released by USDA in 1965. Purple seed. Resistant to CBMV, NY 15, PM, DM, PMV.

Provider ③

204 ***A***: *2oz, $2.20* ***B***: *8oz, $4.80* ***C***: *1#, $7.00*
D: *5#, $19.50* ***E***: *10#, $35.00* ***K***: *25#, $80.00*

Provider - Organic ①

205 ***A***: *2oz, $3.10* ***B***: *8oz, $7.20* ***C***: *1#, $12.00*
D: *5#, $55.00* ***E***: *10#, $100.00* ***K***: *25#, $240.00*
L: *50#, $450.00*

Strike (53 days) Market growers will strike it rich with heavy yields of medium-green 5$^{1}/_{2}$" slender smooth straight round pods. Strike sets the standard for earliness, appearance and ease of picking, and has a pleasing sweet beany taste. White seed. Resistant to NY 15 and CBMV. ③

210 ***A***: *2oz, $2.20* ***B***: *8oz, $5.50* ***C***: *1#, $8.00*
D: *5#, $28.00* ***E***: *10#, $40.00* ***K***: *25#, $95.00*

Jade (56 days) Produces great yields of tasty 5–7" straight slender round dark green beans that keep coming until late in the season, long after others have quit. Tender pods with traditional bean flavor retain rich color longer than others, both on the vine and after picking. Jade's strong upright bush habit holds pods above the ground, reducing curling and tip rot. Resistant to BBS, CBMV, NY15, CTV, tolerant to R. White-seeded Jade is a fussy germinator. Needs soil temperature at least 60° and irrigation during dry spells.

Jade ⑥

230 ***A***: *2oz, $2.50*

Jade - Organic ⑥

231 ***A***: *2oz, $3.20* ***B***: *8oz, $6.50* ***C***: *1#, $11.00*
D: *5#, $50.00* ***E***: *10#, $90.00* ***K***: *25#, $210.00*

Bush Blue Lake 274 (57 days) Long considered the taste standard for home-garden bush beans. Pods average 6", fill slowly with tender plump beans. Very high yields. Not heat tolerant, but excellent for fall crops in areas with very hot summers. Introduced in 1961 as a bush variety of the famous Blue Lake pole bean. White seed. Resistant to CBMV, NY 15. ③

238 ***A***: *2oz, $2.20* ***B***: *8oz, $5.50* ***C***: *1#, $8.00*
D: *5#, $32.00* ***E***: *10#, $55.00* ***K***: *25#, $120.00*

ROMA TYPES

Greencrop (53 days) An early flat-podded Romano type especially adapted to the North. Pods can grow up to 8" long while still retaining good quality. Bred by Albert F. Yaeger and Elwyn Meader at University of New Hampshire. 1957 AAS. White seed. Tolerates CBMV. ③

214 ***A***: *2oz, $2.20* ***B***: *8oz, $5.50* ***C***: *1#, $8.00*
D: *5#, $28.00* ***E***: *10#, $45.00* ***K***: *25#, $100.00*

Roma II (59 days) True flat bush Romano offers heavy yields of fleshy medium-green 5" pods that are slow to develop seeds. White seed. A small percentage will develop runners. Resistant to CBMV, NY15.

Roma II - Organic ⑥ **NEW!**

245 ***A***: *2oz, $3.00* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $44.00* ***E***: *10#, $70.00*

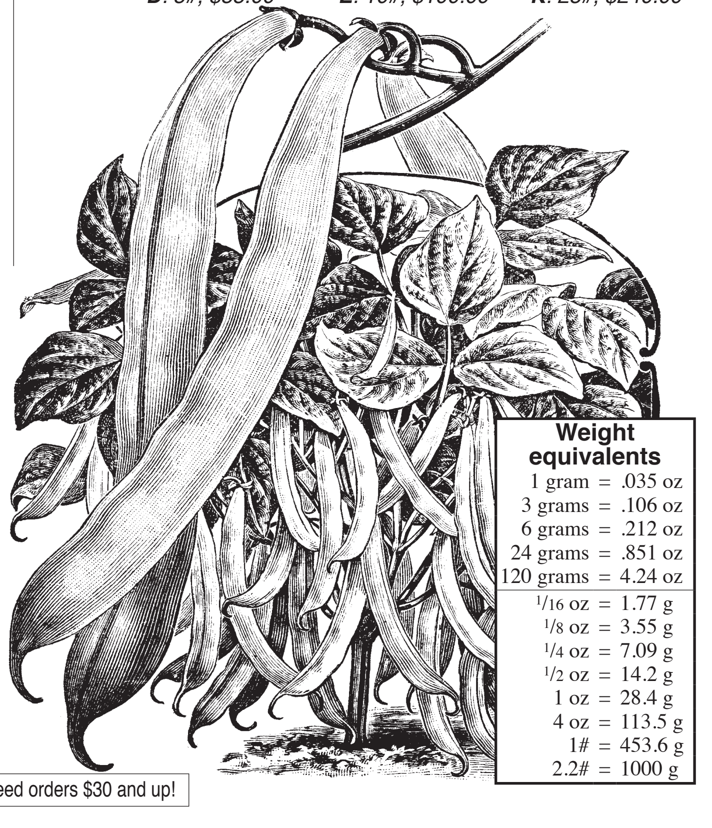
Roma II ③

246 ***A***: *2oz, $2.60* ***B***: *8oz, $7.00* ***C***: *1#, $11.00*
D: *5#, $40.00* ***E***: *10#, $60.00* ***K***: *25#, $125.00*

PURPLE BUSH BEAN

Royal Burgundy - Organic (55 days) Straight 5" meaty purple pods turn bright green after two minutes of blanching. Less foliage than Royalty Purple Pod. Grows well even in cold conditions. Light brown seed. Resistant to CBMV, NY 15, PM. ①

225 ***A***: *2oz, $3.20* ***B***: *8oz, $7.30* ***C***: *1#, $12.00*
D: *5#, $55.00* ***E***: *10#, $100.00* ***K***: *25#, $240.00*



Weight equivalents

1 gram =	.035 oz
3 grams =	.106 oz
6 grams =	.212 oz
24 grams =	.851 oz
120 grams =	4.24 oz
$^{1}/_{16}$ oz =	1.77 g
$^{1}/_{8}$ oz =	3.55 g
$^{1}/_{4}$ oz =	7.09 g
$^{1}/_{2}$ oz =	14.2 g
1 oz =	28.4 g
4 oz =	113.5 g
1# =	453.6 g
2.2# =	1000 g

Free shipping for seed orders $30 and up!

BUSH WAX BEANS

Gold Rush - Organic (54 days) Tender 5–6" straight round stringless beans of this standard early variety have excellent flavor and high yields. Concentrated sets of yellow pods with green tips hold well on vigorous plants. Your market customers won't pan this gold! White seed. Tolerates CBMV. ①

265 ***A***: *2oz, $3.00*
B: *8oz, $7.30*
C: *1#, $12.00*
D: *5#, $55.00*
E: *10#, $100.00*
K: *25#, $240.00*

Golden Butterwax (56 days) A white-seeded wax bean impressive for its rich yellow color and straight pods. Extra beany. Resistant to CBMV, NY15, tolerant to ozone damage. ③

270 ***A***: *2oz, $2.10*
B: *8oz, $6.50*
C: *1#, $8.00*
D: *5#, $30.00*

Dragon Langerie - Organic (57 days) Also known as Dragon's Tongue. Tasty attractive 19th-century heirloom hails from the Netherlands. Compact stocky bushes bear abundant purple-violet flowers followed by flat 6" creamy yellow pods mottled with purple tiger stripes. Sunlight helps the colors become vivid, so plant farther apart in the row than normal bean spacing so interior sets develop good color. Crisp, stringless and amazingly juicy when eaten fresh. Cook or market promptly after picking; turns rubbery and loses snap when stored. Not recommended for freezing. Loses purple coloration in cooking. Seed purplish brown with blue stripes. ①

277 ***A***: *2oz, $3.20* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $52.00* ***E***: *10#, $100.00* ***K***: *25#, $215.00*

BUSH HARICOTS VERTS

Avg 70-125 seeds/half oz packet. Half oz packet sows 10-16 ft; 1 lb, 320-500 ft.

Seeds are smaller than those of regular bush beans. *Haricot vert* is French for green bean, and these have fancier quality than American beans and command a premium in markets. They are more tender and take less time to cook. Also called filet beans. For optimal flavor and texture, pick when pods are thinner than a pencil. Picking interval should be 48 hours or less.

Montpellier - Organic (57 days) We are pleased to offer once again a limited amount of seed of this very refined haricot vert for home gardens. Developed by Petoseed and later bought by Seminis/Monsanto, we trialed it right as they dropped it. We liked the tender delicate beans so much that we committed to keeping the seed going. Bears straight 6" dark green pods on upright bush plants. Our trialer said, "Excellent raw with minimal bitterness." Exquisitely tender with a delicate flavor. Pods tend to be almost camouflaged and can be hard to pick. Small white seed. Resists CBMV and ANTH. ① **BACK!**

247 ***A***: *½oz, $2.70* ***B***: *2oz, $7.00* ***C***: *8oz, $20.00*

Masai (58 days) Unlike classic haricots verts, Masai grows only 5" long, the slender pods juicy and crisp with a pleasing beany flavor. Although much more compact than Provider, each plant cranks out dozens of the diminutive beans that hold longer without fattening, so Masai allows a short vacation from the garden. Elaine Carlson calls them "one of the wonders of the world—I cannot believe how long these green crunchy slivers stand on the little plants." But Holli Cederholm still found she had to pick them every other day to achieve the tender gourmet quality her restaurant markets demanded. A space saver since only a few plants will suffice for a small family. White seed. ~170 seeds/oz. ⑥

248 ***A***: *½oz, $2.40* ***B***: *2oz, $5.00*

Maxibel - Organic (61 days) A heavy producer of uniform dark green fancy 6–8" pods of exceptional length, ramrod straightness and superb taste. For maximum tenderness and most succulent flavor pick the normal-sized bushes early and often. A gourmet market specialty. White flowers, speckled brown seed. Resists ANTH and CBMV. ~140 seeds/oz. ①

249 ***A***: *½oz, $2.40* ***B***: *2oz, $4.60* ***C***: *8oz, $8.00*
D: *1#, $12.00* ***E***: *5#, $55.00* ***K***: *10#, $100.00*

Concador Yellow Filet (62 days) Uniform 4½–5" yellow pods stay slender for a long time on the vine and will keep producing copiously if tended. Concador is the yellow-bean lover's answer to **248** Masai. Medium-sized upright plants larger than Masai. White seed. Resistant to CBMV, ANTH and HB. ~250 seeds/oz. ③

251 ***A***: *½oz, $3.00* ***B***: *1oz, $5.00* ***C***: *4oz, $16.00*

Velour Purple Filet (62 days) Velour delivers ample harvests of slender straight bright 4–5" purple pods that turn green when blanched. With Masai and Concador you can harvest a tri-colored-fecta for home or market. Upright medium-sized plants. Light brown seed. Resistant to CBMV and HB. ~190 seeds/oz. ⑤

254 ***A***: *½oz, $3.00* ***B***: *2oz, $5.00* ***C***: *8oz, $16.00*

SHELL AND DRY BEANS

Avg 130 seeds/2 oz pkt; 1000 seeds/lb. 2 oz packet sows 25 ft; 1 lb, 200 ft.

Culture: Harvest shell beans when the beans are plump inside pods. For dry beans let pods dry on the vine until pressing the beans with your fingernail leaves no indentation. If heavy rains threaten just before maturity, either pull plants by the roots and hang them in a dry place to finish; or pick and shell pods then allow to finish drying indoors.

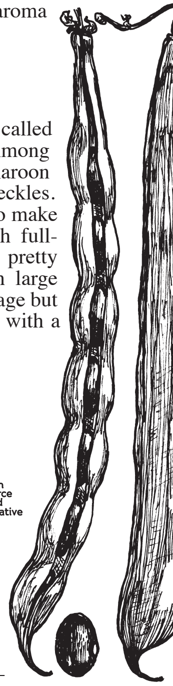
Days to maturity are from date of direct seeding.

Limelight - Organic (60 days shell, 85 days dry) A versatile variety, excellent both as a shell and a dry bean. Plants benefit from loose trellising to avoid possible lodging. They set light green to white seeds similar in shape, color and taste to baby limas, except much easier to grow in our climate and sweeter with a buttery texture. Developed in Alberta, Canada, for growing where it is too cold to mature baby limas, and released in 1968. ①

333 ***A***: *2oz, $4.20* ***B***: *8oz, $12.00* ***C***: *1#, $18.00*
D: *5#, $70.00*

Black Coco - Organic (60 days shell, 85 days dry) A triple-treat bean that is a joy to grow because it is so easy. 2' plants set abundant 5" round pods of plump shiny black seeds that resist shattering in the garden, yet are easy to shell. Coco can be harvested as a green bean although it gets tough if harvested when fully mature. Ten days later it's a good shell bean, but really comes into its own as a refried or soup bean. Larger than other black beans—and early! Cooks quickly with a delicious aroma that promises a hearty robust soup. ①

334 ***A***: *2oz, $3.50* ***B***: *8oz, $10.00*
C: *1#, $14.00* ***D***: *5#, $60.00*
E: *10#, $110.00* ***K***: *25#, $240.00*



Tiger's Eye - ECO (65 days shell, 85 days dry) Also called Pepa de Zapallo, originally from Argentina and Chile. Among the most beautiful of all beans, bright golden ochre with maroon swirls and a smattering that are maroon with golden speckles. That would be reason enough to grow them, but they also make superb fresh shell and delicious baked beans with rich full-bodied flavor. A good pinto substitute: the tender skins pretty much disappear upon cooking. Wide 4" pods fill with large flattened kidney-shaped seeds mostly white at the shell stage but taking on more yellow as they dry. Bush plants grow 2' with a slight tendency to vine. ①

335 ***A***: *2oz, $3.80* ***B***: *8oz, $11.00*
C: *1#, $15.00* ***D*** *5#, $65.00*
E: *10#, $120.00*

Fast Lady Northern Southern Pea - ECO (65 days shell, 90 days dry) *Vigna unguiculata* Where else but in the south would this cowpea be called a lady pea? Well, probably now in the north since Carol Deppe has selected this small white bean to mature quickly in cool summers. The easy-to-pick, easy-to-shell 7–8" yellow pods grow upright on bushy semi-erect plants that impede mold. Beautiful yellow flowers attract pollinators who feast on the nectar. Pick these fast ladies early for shellies, or let them fully mature into dry beans—they have a creamy texture and a reputation for cooking quickly without a pre-soak. **OSSI. Breeder royalties.** ①

321 ***A***: *1oz, $4.50* ***B***: *2oz, $7.50* ***C***: *8oz, $24.00*
D: *1#, $40.00*

Taylor Dwarf Horticultural (68 days shell) Also known as Speckled Bays, this bush shell bean has been a traditional regional favorite since before 1800, producing cream-colored pods early. These are ready to shell when carmine-red splashes appear on them. Shell right after picking, boil until tender (30–45 minutes) and mix with olive oil, chopped garlic and parsley for a late summer treat. Buff seed with red stripes. ③

326 ***A***: *2oz, $2.30* ***B***: *8oz, $6.00* ***C***: *1#, $9.00*
D: *5#, $30.00* ***E***: *10#, $45.00* ***K***: *25#, $100.00*

Silver Cloud Cannellini - Organic (70 days shell, 90 days dry) An improved Cannellini with an upright bush habit bred by Washington State University. Green with bright pink streaking, Silver Cloud's short fat 5–6" pods contain five plump white seeds instead of the eight skinny ones found in most cannellini pods. The overall appearance is more like that of a **326** Taylor Horticultural bean than of a typical white kidney bean. These make amazingly early and absolutely superb shell beans, "incredibly good, especially in a salad with bleu cheese dressing," says Sylvia Loomer of Aberdeen, WA. When dried and cooked, its smooth meaty texture and dense nutty flavor are prized in minestrone and other soups and stews. Resists CBMV, CTV, tolerates R. ①

331 ***A***: *2oz, $3.00* ***B***: *8oz, $8.00* ***C***: *1#, $14.00*
D: *5#, $53.00*

Vermont Cranberry - Organic (70 days shell, 95 days dry) This bush bean is not to be confused with pole bean **371** True Red Cranberry (p. 9), though each is a New England tradition since before 1800. Vermont Cranberry's pods contain 5 to 6 speckled cranberry-colored shell beans. Reliable, hardy, easy to shell. Sometimes gets viney. **Indigenous Royalties.** ①

328 ***A***: *2oz, $3.30* ***B***: *8oz, $7.00* ***C***: *1#, $10.00*
D: *5#, $42.00* ***E***: *10#, $80.00*

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

more DRY BEANS

King of the Early (85 days) Beautiful mottled red baking bean. Seed propagated from a sample sent to us years ago by seed-saving customer Linwood Ware. King's ability to ripen early, its capacity to swell enormously when soaked, its utter dependability through hot summers and cool, and its robust flavor won our hearts. We've found King easy to grow and heavy yielding year after year. ①

336 ***A***: *2oz, $3.00* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $50.00* ***E***: *10#, $80.00* ***K***: *25#, $175.00*
L: *50#, $325.00*

Maine Sunset - ECO (85 days) *Availability uncertain at press time. Please check our website.*

Mitla - ECO (85 days) Though this variety first came to us as a tepary bean, it is not. Acting on a tip from Tim Springston of Oxbow Farm in Erin, NY, we grew it out in 2014 alongside four genuine tepary beans. We found it looked clearly different from the true teparies and like the *vulgaris* species. Even more telling: Mitla thrived in our cooler moist climate, but the true teparies, better adapted to the extremely arid Sonoran desert, struggled and had almost no bean set. Mitla, hailing from the Mitla Valley of Oaxaca, Mexico, is the only so-called tepary widely grown in the north. Its dense foliage produces medium runners, lavender flowers and good yields of thin delicate pods each containing 5–6 lustrous black seeds. A good crop for new plots, it covers the ground and builds the soil. The great-tasting nutritious beans are excellent in black bean soup and for refries. Soak the small seeds and let them cook longer than other beans. ①

320 ***A***: *2oz, $6.00* ***B***: *8oz, $18.00* ***C***: *1#, $30.00*

Marfax - ECO (86 days) These are the beans served at Sagadahoc MOFGA's famous baked bean, switchel and cider booth at the Common Ground Country Fair. This chapter has vended at all 42 fairs and sold baked beans since 1996. Heirloom resembling Swedish Brown Bean, but earlier and higher yielding. Richly flavored brown baking bean very well adapted to our cool climate. Golden-tan seed. We hope to add Organic Marfax to the lineup—please chedk our website for it. **Indigenous Royalities.** ①

338 ***A***: *2oz, $3.60* ***B***: *8oz, $9.00* ***C***: *1#, $13.00*
D: *5#, $60.00* ***E***: *10#, $100.00*

Jacob's Cattle - ECO (88 days) Popular New England heirloom, often referred to as Jake's, may have originated with Native Americans in the Southwest. Derives its name from the biblical story of Jacob and the spotted cattle. Its dark red speckles on white background are said to look like the cattle's markings. If harvested earlier, the kidney-shaped beans make superb shellies. **Indigenous Royalities.**

Jacob's Cattle - ECO ①

343 ***A***: *2oz, $3.50* ***B***: *8oz, $7.50* ***C***: *1#, $11.00*

Jacob's Cattle - Organic ① **NEW!**

344 ***A***: *2oz, $3.60* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $55.00* ***E***: *10#, $100.00*

Love you guys! I order online but your physical catalog is indispensable throughout the season.
– Isaac Meyer, Grand Rapids, MN

Soldier - ECO (89 days) Unlike our soldiers in most faraway wars, these Soldiers have a clear winnable mission within a defined timetable: to reproduce themselves every year for our mutual benefit! Large drought-tolerant white kidney beans with red-brown figures on the eyes. Also called Red Eye, the "soldier" figure looks something like a toy soldier, or an 18th c. European soldier. A favorite in colonial Bean Town. ①

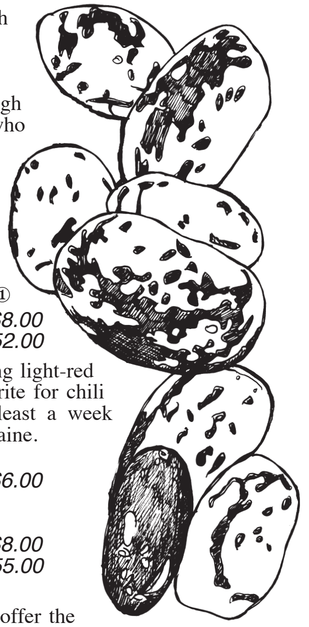
349 ***A***: *2oz, $2.50* ***B***: *8oz, $7.00* ***C***: *1#, $11.00*
D: *5#, $45.00* ***E***: *10#, $75.00* ***K***: *25#, $175.00*
L: *50#, $300.00*

Kenearly - Organic (89 days) Yellow Eye is one of the signature varieties of Maine bean hole suppers. Kenearly, a selection of Yellow Eye, was developed at the Kentville, Nova Scotia, research station. Very similar to the Maine Yellow Eye strain we formerly sold, but with slightly larger eye and more uniform maturity. Plump oval medium-sized beans, cream with yellow eye. ①

353 ***A***: *2oz, $3.60* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $52.00* ***E***: *10#, $95.00*

Monos Negros - ECO (90 days) The name means 'black monkeys' in Spanish. Marina Davis brought this small heirloom black bean to our attention. Plant economy and extreme earliness are its primary assets. Plants sprawl and twine, but don't get moldy. Monos ripens much earlier than **385** Black Turtle, but with not quite as rich flavor. Seed collected by Will Bonsall from Salvadoran immigrants in Vassalboro, ME. ①

358 ***A***: *2oz, $4.00* ***B***: *8oz, $13.00* ***C***: *1#, $22.00*
D: *5#, $90.00*



Agate Pinto - ECO (92 days) Mostly bush prolific pinto with medium-sized slightly flattened mottled beans of rich spicy flavor and creamy texture. Does well in the short seasons of the north. Hailed as a breakthrough when introduced in 1982 by Rogers Bros. who crossed Ouray with UI 114, then selected to dwarf most of the typical vininess out of pintos, making Agate easy to harvest. An occasional plant (less than 5%) will still send out sprawling runners. Excessive nitrogen can induce additional vining. Quick cooking, essential bean in Mexican cuisine. Widely adaptable. Resists CBMV. ①

366 ***A***: *2oz, $4.00* ***B***: *8oz, $8.00*
C: *1#, $11.00* ***D***: *5#, $52.00*

Red Kidney (102 days) An early-maturing light-red kidney bean developed at Cornell. A favorite for chili and minestrone. Large beans mature at least a week earlier than similar types. Seed grown in Maine.

Red Kidney ①

376 ***A***: *2oz, $2.30* ***B***: *8oz, $6.00*
C: *1#, $10.00*

Red Kidney - Organic ①

377 ***A***: *2oz, $3.60* ***B***: *8oz, $8.00*
C: *1#, $12.00* ***D***: *5#, $55.00*
E: *10#, $100.00*

Black Turtle - Organic (102 days) We offer the Midnight strain, an improved upright bush version of the heirloom, developed at Cornell. A refinement of the original, first sold in 1832 by Grant M. Thorburn, one of the first U.S. seedsmen. Features small black beans with rich spicy flavor popular for soup. ①

385 ***A***: *2oz, $3.00* ***B***: *8oz, $7.50* ***C***: *1#, $12.00*
D: *5#, $50.00* ***E***: *10#, $90.00* ***K***: *25#, $200.00*

Saturday Nite Special - ECO (105 days) Legendary plant breeder Elwyn Meader was hired by famous Maine baked bean company B&M (founded 1867) to breed a pea bean that would bake well and have a season short enough to grow in Maine. B&M lost interest when it was bought out by the William Underwood Corporation in 1965 so the bean was never introduced to the public. Preserved by Elwyn's son John as X-3, this small pure-white pea bean is early, impressively productive and cooks well. Short sturdy plants bear more than 20 pods each and "dry down nice." John, recalling his father's knack for naming cultivars, suggested that Elwyn might have called it Saturday Nite Special in honor of traditional Maine bean suppers and their explosive after-effects! So we did. ❧2009 ①

388 ***A***: *½oz, $3.00* ***B***: *2oz, $6.00*
C: *8oz, $16.00* ***D***: *1#, $25.00*

Guard-N Combo Legume Inoculant Leguminous plants can add nitrogen to the soil—if they can host the right bacteria. This combination of strains inoculates the roots of the legumes that most farmers and gardeners plant. For green and dry beans, limas, favas, bell beans, soybeans, peas, sweet peas, cowpeas, lentils and peanuts. For home gardens, moisten the seed slightly and sprinkle on inoculant, then plant.

798 ***A***: *treats 8#, $6.00* ***B***: *treats 50#, $10.00*

POLE BEANS

Avg 30 seeds/half oz packet. 800-1500 seeds/lb. Half oz packet sows 7–10'.

Culture: Though it can be fun to plant beans on poles or sunflowers, most folks grow them on fencing. Plant 3–4" apart along the fence. All pole beans have strings that won't annoy you if they're picked early and often. Frequent clean picking keeps your vines vigorous and productive. Pick and compost those fat ones hanging low that got away, or cut them coarsely and add them to minestrone as suggested by Crystal Nichols of Greene, ME. If you leave them, your plants will stop producing, satisfied they've fulfilled their reproductive mission.

One customer says, "Many people—even gardeners and cooks—have no idea how much better tasting pole beans are. Most bush beans are cardboard by comparison."

Days to maturity for pole beans are to fresh bean harvest, unless noted otherwise.

Multicolored Pole Bean Mix (60-72 days) Plant a pole of polychromatic pods! We combine green, yellow, purple and striped varieties of staggered maturity into one packet. Great for those wishing to try all our varieties but with room for only one or two poles, and for CSAs who want to put a whole rainbow into each box. Varieties, our choice, will vary from year to year according to availability.

*297 **A**: 1/2oz, $2.20 **B**: 2oz, $4.30*
*   **C**: 8oz, $10.00 **D**: 1#, $16.00*

Northeaster - Organic (55 days) Supply uncertain at press time; *check our website for availability.*

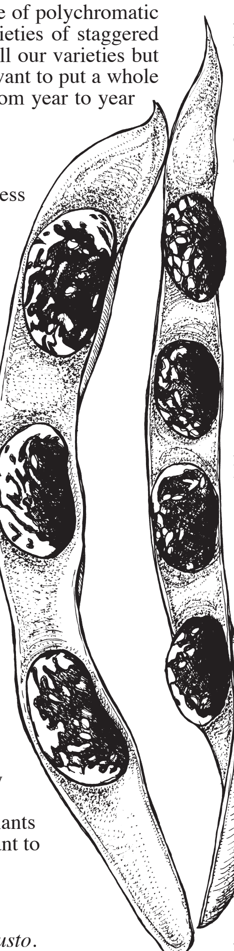
Seychelles (55 days) 2017 AAS winner Seychelles produces a flood of 5–6" stringless round-podded very dark green fresh beans. The deep pod color is mirrored in the lush healthy foliage. Climbing 7–9', vines set early and steadily as they grow with multiple beans ripening simultaneously on trusses for easy grab-n-go picking. Our supplier recommends either trimming any growth above the top of the trellis or staking to promote bushier habit and pod set on the lower parts of the vine. Although not the best bean for eating raw, it is meaty and mild when cooked, with green pods that don't fade. Quick to bear even in cold and wet conditions, seeds slow to develop, and good eating over a long season. Might just turn reticent bush-bean lovers into pole-sters. Resists CBMV and ANTH.

Seychelles - Organic ⑥ **NEW!**

*278 **A**: 1/2oz, $2.20 **B**: 2oz, $6.60*
***C**: 8oz, $15.00 **D**: 1#, $25.00*
***E**: 5#, $105.00*

Seychelles ⑥

*279 **A**: 2oz, $3.40 **B**: 8oz, $9.50*
***C**: 1#, $15.00*



Monte Gusto (58 days) An elegant standout in wax pole beans. Bright yellow 7–8" pencil-thin smooth filet beans are blemish-free, exceptionally productive, and easy to pick. Sweet, tender and rich in flavor, both cooked and raw, excellent for canning, freezing, or fresh eating. 70" plants produce until frost. *We cannot sell to Idaho*. Highly resistant to CBMV. ⑤

*283 **A**: 1/2oz, $3.10 **B**: 2oz, $6.50*
***C**: 8oz, $20.00 **D**: 1#, $32.00*

Golden Gate (59 days) *Not available. Go with Monte Gusto.*

Kentucky Wonder (68 days) "…it is an old variety with solid meaty pods, 7–9" long…and when cooked no bean is better. It is enormously productive, the pods hanging in great clusters from top to bottom of the pole." So said Stark Bros. in 1921. The nutty flavor makes them outstanding for freezing. As the beans mature, the pods flatten. Pick regularly to maintain quality and production, as they get tough once the beans enlarge. A favorite since the mid-1800s. Also known as Old Homestead. Wonder was given its present name by the eminent Marblehead, MA, seedsman James J.H. Gregory in 1877. Stark Bros. again: "Of all the climbing kinds, we do not believe there is a better one than Kentucky Wonder." Brown seeds. ③

*285 **A**: 2oz, $2.30 **B**: 8oz, $5.80 **C**: 1#, $9.00*
***D**: 5#, $26.00 **E**: 10#, $45.00 **K**: 25#, $100.00*
***L**: 50#, $175.00*

Purple Podded Pole Bean (70 days) Discovered by Henry Fields in the Ozark Mountains in the 1930s, this purple-podded heirloom is favored by old-timers in that region. Some kids think these beans are magic because they turn green when cooked. The vigorous vines climb 6–7', are graced by lilac-colored blossoms, and produce copious tender bright purple pods. We've included it in our multicolored pole bean mix for years. ③

*288 **A**: 2oz, $2.30 **B**: 8oz, $6.60 **C**: 1#, $9.50*
***D**: 5#, $35.00 **E**: 10#, $45.00*

Poles for Pole Beans: Nikos uses three-legged tipis for staking.Gloria Seigars of New Sweden, ME, employs tall limber ash saplings that can be bent double without breaking. "Wired together, several of them make a nifty arbor and grand entrance to the vegetable garden." Will Bonsall suggests letting them climb sunflower stalks. Give the sunflowers a two-week head start.

Plant ~5 seeds to a tipi or 2 to a sunflower.

Rattlesnake (70 days) "I've always been a Kentucky Wonder girl but got Rattlesnake for a substitute and am I ever glad. These beans are delicious fresh and frozen—beautiful, too," avers Catherine Hall of Ellsworth, ME. Called Preacher Bean in parts of the South, Rattlesnake produces a good harvest of juicy 6–7" pods with purple streakings said to resemble the markings of a rattlesnake. Elisabeth notes a most pleasing mushroomy aftertaste to the fresh beans. Tan seed with dark stripes. ③

*292 **A**: 2oz, $2.30 **B**: 8oz, $7.00 **C**: 1#, $10.00*
***D**: 5#, $30.00*

Dolloff Pole - ECO (70 days shell, 90 days dry) The first time I cooked up a mess of Dolloff beans I was hooked: rich, substantial, meaty—everything I want in a bean. I was not surprised to learn this variety has been long grown and selected in the Northeast for abundant yields of dry beans in cool short seasons. Named after Vermonter Roy Dolloff of Burke Hollow who helped keep the bean going. Prior to full maturity they make tasty green or shelly beans; at shell stage the beans are light salmon pink with darker speckles. It's worth waiting for the light chestnut-brown dry beans, which are wide and flat like limas. It is consistently one of the first dry beans to mature in my garden, only slighter later than bush Tiger Eye. Those who have trouble maturing dry pole beans in challenging seasons will find Dolloff the closest thing to a cinch. ① **BACK!**

*362 **A**: 1/2oz, $2.20 **B**: 2oz, $6.60 **C**: 8oz, $15.00*

Scarlet Runner (70 days snap, 95 days shell) *Phaseolus coccineus* Climbing beans often grown as ornamentals for their brilliant scarlet blossoms that attract hummingbirds. Need trellises, fences or poles; will grow to 10–12', perfect for shading a porch. Gorgeous purple and black mottled seeds may be the most beautiful in our catalog. "There is nothing like the face of amazed surprise when a child opens the pods from these plants," reports Anne Elder. Heirloom variety grown as early as 1750 by colonists and in 1791 by Thomas Jefferson. ~20 seeds/oz. ✿ ③

*318 **A**: 1oz, $2.30 **B**: 2oz, $3.50 **C**: 8oz, $7.00*
***D**: 1#, $12.00 **E**: 5#, $50.00*

Blue Coco - Organic (72 days snap) A pre-1775 French heirloom named for its chocolate seeds and bluish-purple pods, Coco makes a handsome vining plant, its green leaves tinged with purple. Can serve as a snap, shell or dry bean. Slightly curved pods with tender strings flatten as they age. Mild and sweet with a pleasing meaty flavor and nutty aftertaste. Can be harvested at 3" as filet beans, remain tender to 5" without getting stringy. Pods turn green when blanched. Freezes well. Supposedly tolerant of both heat and drought, its production slacked off in hot dry weather, recovering upon the return of rain and more temperate nights. ① **BACK!**

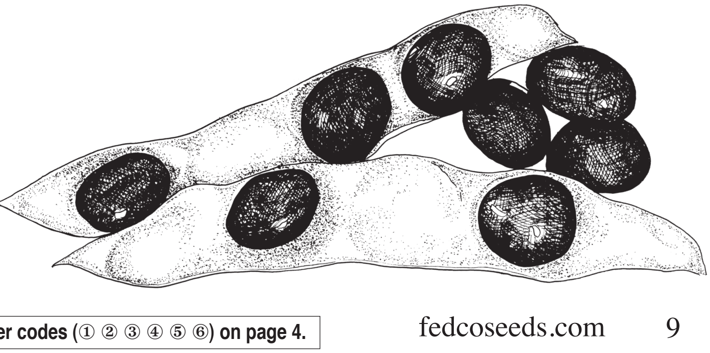
*295 **A**: 1/2oz, $2.40 **B**: 2oz, 4.00 **C**: 8oz, $10.00*
***D**: 1#, $17.00 **E**: 5#, $80.00*

Red Noodle Yard Long (90 days fresh) *Vigna unguiculata sesquipedalis* A pole or two of these, with their long pencil-thin 14–18" cascading burgundy pods, makes a stunning garden entrance that draws people in and excites curious inquiries. Not the earliest of Yard Long beans, an Asian specialty, but surely the most spectacular. An indifferent performer in chilly Central Maine, Noodle loves heat and moisture. Keep it picked to sustain production. Intriguing strong unique indescribable flavor is brought out best by dry-frying in a hot wok with peanut oil, garlic and soy sauce. Stringless and most tender when young and thin. Must be trellised. ~200 seeds/oz. ①

*322 **A**: 1/2oz, $3.80 **B**: 2oz, $12.00 **C**: 4oz, $20.00*

True Red Cranberry - Organic (102 days dry) Although one of the very best baking beans, TRC can be a difficult seed crop to mature, especially finicky in cool moist seasons. Despite a dry fall, CR's weren't dried down till Oct. 6 in Zone 5 Colrain, MA. Garden writer Michele Owen, author of *Grow the Good Life*, says, "I love chili, and True Red Cranberry beans cook up creamy without disintegrating with a richer flavor than any other red bean I've ever tasted." Inspired by a description of "Red Cranberry" in a 1700s gardening encyclopedia, legendary bean collector John Withee, after an 11-year search, finally obtained it from Mr. Taylor of Steep Falls, ME. The plump round maroon seeds without streaking look like Thanksgiving cranberries, unlike the speckled oval bush cranberry types. One of our oldest varieties, probably Native American, True Red Cranberry is listed on Slow Food's Ark of Taste. Soak seed 24 hours to aid germination. **Indigenous Royalities.** ①

*371 **A**: 1oz, $4.00 **B**: 2oz, $7.00*
***C**: 8oz, $20.00 **D**: 1#, $36.00*
***E**: 5#, $160.00*



Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

FAVA BEANS *Vicia faba*

Avg 35 seeds/2oz pkt, 280 per lb. Also called broad beans and horse beans.

Culture: Favas tolerate frost, but do not thrive in hot weather. Unlike other beans, so don't wait; sow the large seeds 3–4" apart as early as peas. Harvest when the 2–3 light green beans in the 3–6" glossy pods reach the green shell stage.

Melanie Edwards of Eastport, ME, advises: "If you cook them fresh-picked they need to be parboiled only 1–2 minutes in lightly salted water. If they have been in the refrigerator a while, give them a minute more. Utterly delicious when a small bit of the cooking water is eaten with the bean. Gently break open the seed casing with your front teeth and squeeze out the inside. Shelling your own as you eat them is similar to the difference between eating corn on the cob and whole kernel corn. No comparison."

Favas are mainstays in many cultures from ancient Rome to modern-day Mexico, Brazil and India. Rich in fiber and iron and highest of all beans in protein.

Windsor (75 days) Bush type. The classic heirloom variety, listed by Fearing Burr in *Field and Vegetable Gardens of America* in 1863. We sell about a half ton of these each year. Brown seed.

Windsor ③

298 ***A**: 2oz, $2.40* ***B**: 8oz, $6.30* ***C**: 1#, $9.50*
***D**: 5#, $27.00* ***E**: 10#, $50.00* ***K**: 25#, $100.00*

Windsor - Organic ③

299 ***A**: 2oz, $3.60* ***B**: 8oz, $11.00*

LIMA BEANS *Phaseolus lunatus*

Culture: Limas require more heat than green beans and are indifferent performers in cold wet summers. Plant as for other bush or pole beans. Harvest when the beans bulge inside their pods. **Minimum soil temperature 60˚, optimal range 70-85˚.**

Packers - ECO (100 days) Last offered in 2016, the opening sentence of our description was written in 1999: "With global warming apparently bringing later fall frosts to our region, limas are becoming a better bet." Packers was the clear winner among a dozen contestants in our original trial way up north in Parkman, ME. In defiance of the chilly location, its branching bush plants were laden with 3" flat pods that matured in profusion. Our recent taste-testers found it "a satisfying delicious blend of mealy and oily, with good bean flavor." Another said, "Almost *too* sweet and savory." If you've never experienced fresh baby limas right from the garden, you won't believe how delicious they can be. Light green-white seed. *Seed in short supply*. ① **BACK!**

323 ***A**: 1/2oz, $3.00*

Jackson Wonder (103 days) U.P. Hedrick in 1931 in *The Vegetables of New York* called it "the hardiest of all bush limas, very productive." In his *100 Vegetables and Where They Came* From, William Woys Weaver highly praised Jackson Wonder for baby pods that are so tender they can be cooked like snow peas, and mature beans handsome enough to use as beads. Introduced in 1888, Atlanta farmer Thomas Jackson's drought-tolerant variety created a sensation for its productivity, even though it stands only 18" tall. Wonder features about 3 seeds per curved 3" pod, grey in the shell stage and drying to buff with lovely purple and black mottling, as succulent as they are decorative. Its sweet-smelling white flowers attract butterflies. Avg 950 seeds/lb. ✿ ③

324 ***A**: 2oz, $2.20* ***B**: 8oz, $6.00* ***C**: 1#, $9.00*
***D**: 5#, $30.00* ***E**: 10#, $40.00*

King of the Garden (106 days) Also known as Henderson's Leviathan, for those with a season long enough to grow pole limas. Developed from a cross between Large White and Dreer by Frank S. Platt in 1883. Platt selected five- and six-seeded Large White pods so that King's long flat 8" pods dependably produce at least 4 large creamy-white seeds of splendid quality over an extended harvest period. Gregory called them the standard late pole lima and advised in his 1917 catalog that the plants are extremely vigorous so that "no more than two should be allowed to grow to a pole." Indeed, the vines can grow 10' high on fertile ground! *Caution: Not adapted to northern areas*. Avg 480 seeds/lb. ③

325 ***A**: 2oz, $2.30* ***B**: 8oz, $6.60* ***C**: 1#, $10.00*
***D**: 5#, $33.00* ***E**: 10#, $55.00*

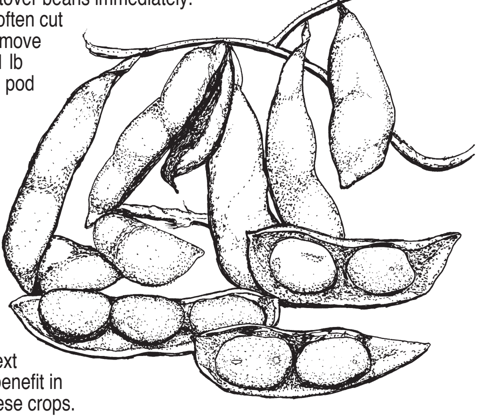
SOYBEANS *Glycine max*

Avg 40 seeds/half oz pkt. 160 seeds/2 oz. ~1200 seeds/lb.

Culture: Plant 3–4" apart after danger of frost; harvest when most of the pods have expanded but are still green without yellowing. For best flavor harvest in the evening.

The Japanese call them *edamame* (eh-duh-mah-may), meaning 'beans on branches,' and boil and salt them like beer nuts. Edamame are rich in vitamins A, C and E, calcium, phosphorus, protein and fiber. Encouraged by their recent popularity, breeders are selecting for larger pods with sweeter beans.

Steam or boil the pods for 4–5 minutes, chill quickly for easy shelling. Refrigerate the leftover beans immediately.



Fresh-market growers often cut off plants near the base, remove the leaves and bunch into 1 lb units, rather than pick each pod individually.

Seedsman Tom Vigue plants edamame in the same furrow as his sweet corn. He thins each to one plant per row foot and suffers little yield loss from either crop: the soybeans are a gift. He sows a living mulch of forage radish that takes off after both main crops are dead. He follows the next year with potatoes, which benefit in rotation from all three of these crops.

Beer Friend (83 days) *Dropped for poor seed quality. Try Chiba.*

Chiba Green - Organic (83 days) With similar maturity to Beer Friend, this edamame soybean packs a lot of flavor and production into 2' compact plants. Dark green pods hold their color well and the large beans have exceptional soybean flavor when eaten fresh: "soft, sweet, nutty, almost-milk-like, yum" was how our trial eaters described it. Picking can be staggered over a short 10-day harvest window as they ripen from the bottom of the plant to the top. They are widely adapted and have a high percentage of 3-seeded pods under optimal conditions. Great for small gardens. ① **NEW!**

494 ***A**: 1/2oz, $3.30* ***B**: 2oz, $7.50* ***C**: 8oz, $13.00*
***D**: 1#, $22.00*

Sumo (87 days) *Crop failure; not available in 2020.*

Tankuro (90 days) In Japan, black-seeded edamame varieties are deemed to have a richer and sweeter flavor than the traditional green or tan kinds. Tankuro was the winner for productivity and pleasing flavor in our initial trial to find the best black-seeded variety. In exceptional heat, our May 25 planting produced robust 3' plants loaded with pods packed with an average of 2.4 beans each. They began ripening Aug. 17, the same day as Shirofumi. Harvest would be 1–2 weeks later in a season with average heat. Pick promptly when the immature seeds are bulging yet the pods are still dark green, before the plants begin to yellow. Those pods that you miss will dry down, maturing beautiful black pearls that can provide your next year's planting stock.

Tankuro ③

490 ***A**: 1/2oz, $2.80* ***B**: 2oz, $8.00*

Tankuro - Organic ① **NEW!**

488 ***A**: 1/2oz, $3.00* ***B**: 2oz, $9.50* ***C**: 8oz, $14.00*
***D**: 1#, $24.00*

Shirofumi (91 days) Vigorous thigh-high vines make early concentrated sets of light green pods, averaging two beans per pod. The 10-day picking window is generally from late August through early September. An excellent substitute for limas in short-season areas. Our stock seed came from Tom Vigue, who did considerable trials and selection work with this crop. Beth Rasgorshek of Canyon Bounty farm has carried on his work for years. Resists ANTH, CBMV.

Shirofumi ②

482 ***A**: 1/2oz, $2.50* ***B**: 2oz, $6.50* ***C**: 8oz, $21.00*
***D**: 1#, $33.00* ***E**: 5#, $130.00*

Shirofumi Organic ①

491 ***A**: 1/2oz, $2.60* ***B**: 2oz, $7.00* ***C**: 8oz, $22.00*

Sayamusume - Organic (92 days) Ripens just after Shirofumi with longer darker pods and sweeter beans. CR and Roberta agree it's the best-tasting variety, rich and buttery with an appealing sweetness if allowed to ripen fully. Consistent high yields of more than 3 beans per 3" pod. Ripens in the north at the end of August most years; early September in cold seasons. ① **BACK!**

492 ***A**: 1/2oz, $3.00* ***B**: 2oz, $9.50* ***C**: 8oz, $14.00*
***D**: 1#, $24.00*

Giant Midori (93 days) *Dropped. Try Sayamusume.*

Soybean Inoculant For soybeans and edamame. In home gardens, moisten the seed slightly and sprinkle on inoculant, then plant.

799 ***A**: treats 50#, $6.60*

BEETS

Beta vulgaris

Avg 2200 seeds/oz, with variations (extreme exceptions noted in descriptions).

1/8 oz packet sows 20 ft; 1 oz, 160 ft. Open-pollinated, except where noted.

Culture: Hardy and easy to grow. Can be sown almost as soon as ground can be worked. Thin by harvesting greens with baby beets. Beets left to mature to full size should be at least 3" apart. Minimum germination temperature 40˚, optimal range 60–85˚.

Diseases:

CLS	Cercospora Leaf Spot
PM	Powdery Mildew
DM	Downy Mildew

CLS looks like someone shot a series of small target-like circles in the foliage. Prolonged periods of rainfall and high humidity exacerbate this disease. In serious cases the spots darken and extend. Rotating crops, removing plant debris, and wider spacing to ensure adequate air circulation are preventive measures.

Scab, the same disease that afflicts potatoes, causes rough brown spots on the skin. Adequate irrigation is a preventive.

Days to maturity are from direct-seeding.

T.A.S.T.Y.
JR 2019

Robin (40 days) F-1 hybrid. Of baby-beet class and short-top type, Robin's vigor and health put wimpy competitor Babybeat to shame. This Boy Wonder's 10" tops show nice contrast between dark red stems and disease-resistant dark green leaf. Add deep red 1–2" round beets, and Robin packs a visually powerful punch, …I mean bunch, at market. Even better, its uniformity and ability to hold size makes harvesting a mess of beets quick and easy. True to New England tradition, I steamed mine up whole, tops and bottoms. Holy Diminutive Delights! The full sweet beet flavor and fine-grained solid red interior was a revelation in taste and texture. We are well-stocked so there won't be any early backorders. ⑤

2105 ***A**: 1/8oz, $2.60* ***B**: 1/2oz, $4.40* ***C**: 1oz, $7.00*
***D**: 4oz, $18.00* ***E**: 1#, $60.00*

Early Wonder Tall Top (48 days) The beet that can't be beat in our customers' estimation, loved by commercial growers and home gardeners alike. We sell more than 5,000 packets per year. Selected for earliness from Crosby's Egyptian and introduced in 1911. Quick emergence in cold soil and attractive purple tops make Wonder the choice for early beet greens and bunching beets. In their 1916 catalog F.H. Woodruff & Sons of Medford, CT, claimed to be the largest beet-seed growers in the U.S. and the originators of Early Wonder.

Early Wonder Tall Top ④
2108 ***A**: 1/8oz, $1.90* ***B**: 1/2oz, $2.70* ***C**: 1oz, $3.80*
***D**: 4oz, $5.60* ***E**: 1#, $12.00* ***K**: 5#, $53.00*

Early Wonder Tall Top - Organic ③
2109 ***A**: 1/8oz, $2.10* ***B**: 1/2oz, $3.00* ***C**: 1oz, $5.00*
***D**: 4oz, $11.00* ***E**: 1#, $32.00* ***K**: 5#, $124.00*

Red Ace (50 days) F-1 hybrid. Sweet early-season beet with purple tops. Market growers appreciate its uniformity and perfect shape, very similar to Early Wonder but more refined. Nikos loves its deep color and flavor. Tolerant to CLS. Avg 1100 seeds/oz.

Red Ace ⑤
2120 ***A**: 1/8oz, $2.80* ***B**: 1/2oz, $5.00* ***C**: 1oz, $8.00*
***D**: 4oz, $18.00* ***E**: 1#, $56.00*

Red Ace - Organic ⑤
2121 ***A**: 1/8oz, $3.00* ***B**: 1/2oz, $7.00*

Kestrel (23-35 days baby; 55 days full size) F1-hybrid. Newly released veggie varieties are often touted for their "dual-purpose" potential, but much of this verbiage falls flat in our hardy Maine trial program. Kestrel beet is an exception, meeting and possibly exceeding the quality of elder sibling Red Ace. In the early baby and summer crop, vigorous healthy greens top elegant uniform heart-shaped roots. The tender deep red interior was mild and sweet even after 2018's dry scorching June. Come fall, full-size rounded-heart roots develop sweet deep full flavor with zero bitter sharpness. Triple-happiness is complete when Kestrel emerges from long storage firm and yummy after other beet varieties have wrinkled or rotted! Kestrel is now perched in our beet-like hearts. Intermediate resistance to DM, PM, CLS and rhizoctonia. ⑤

2126 ***A**: 1/8oz, $2.90* ***B**: 1/2oz, $5.40* ***C**: 1oz, $9.50*
***D**: 4oz, $30.00* ***E**: 1#, $86.00*

Eagle (25-35 baby, 55 days full size) F-1 hybrid. Of the Early Wonder class with quick root growth and tall bright green tops, Eagle soared in our 2018 summer beet trials. While many OP and hybrid comparisons struggled to size up in the early dry heat, steady vigorous Eagle bore bunch-worthy round baby beets with proud tops. Later, when humidity brought rampant Cercospora leaf disease that eliminated many trial-mates from consideration, Eagle, Kestrel and Red Ace glided to maturity with nary a spotted leaf. When cooked, Eagle's dark red globes turn a solid dusky crimson with the deep red inside showing only slight hints of zoning. Taste and texture is perfect: simply sweet and smooth, no bitterness even when grown in stressful conditions. For fresh summer use; not for long storage. Very high resistance to bolting. ⑤

2152 ***A**: 200 seeds, $2.10* ***B**: 500 seeds, $2.50*
***C**: 1,000 seeds, $4.00* ***D**: 5,000 seeds, $14.00*
***E**: 10,000 seeds, $20.00*

Chioggia (55 days) Also known as Bassano, for the Venetian hill town where it originated. Has been cultivated in the States since the 1840s, was listed by Fearing Burr in 1863, and offered by Vick's for 75¢ per lb in 1877. Beautiful when sliced, this heirloom home-garden type attracts attention in the kitchen with its alternating interior rings of pink and white. Noteworthy also for its light red exterior color, green tops and exceptional sweetness. It loses quality when it gets large.

Chioggia ②
2136 ***A**: 1/8oz, $2.40* ***B**: 1/2oz, $4.00* ***C**: 1oz, $5.50*
***D**: 4oz, $11.00* ***E**: 1#, $28.00*

Chioggia Guardsmark - Organic ⑤
2137 ***A**: 1/8oz, $3.20* ***B**: 1/2oz, $7.00* ***C**: 1oz, $11.00*
***D**: 4oz, $32.00* ***E**: 1#, $120.00*

Cylindra (56 days) Also known as Forono and Formanova, a long smooth regular cylindrical beet, growing to 7", dark red, sweet and beety. Highly marketable and not at all woody, in the words of one trialer, "a fine all-around beet suitable for baking, cooking, and pickling." Roberta rates them the darkest and least fibrous of our beets. Roots will push up out of the ground and develop rough shoulders. Heirloom from the 1880s, originally from Denmark. Avg 3000 seeds/oz. ②

2156 ***A**: 1/8oz, $2.00* ***B**: 1/2oz, $3.50* ***C**: 1oz, $4.20*
***D**: 4oz, $6.60* ***E**: 1#, $20.00* ***K**: 5#, $80.00*

Lutz Green Leaf (60 days) *Not available*. We plan to have seed for this biennial crop in 2021.

Detroit Dark Red (60 days) Globular smooth uniform beets with tender oxblood-red flesh. "New varieties come and go, but the Detroit Dark Red, year after year maintains its popularity and holds its place right at the top of the list of good midseason varieties," asserted Stark Bros. catalog in 1921. Introduced 1892 and still the standard late variety for home gardeners and canners. Among the several strains of this century-old variety, this one had the best roots in our evaluation. Avg 3000 seeds/oz. ②

2182 ***A**: 1/8oz, $1.80* ***B**: 1/2oz, $2.40* ***C**: 1oz, $3.30*
***D**: 4oz, $5.60* ***E**: 1#, $16.00* ***K**: 5#, $65.00*

Bull's Blood (60 days) Prized for its spectacular leaves, not its rough flattened globe-shaped roots. Runaway winner of the 26 varieties in our beet greens trial years back, sweet and nutty with never a hint of oxalic aftertaste, it again received high praise from our tasters more recently. Also a winner in appearance, with large glossy reddish-purple leaves. No bull, it holds quality all summer, with color intensifying as it grows, especially under cool conditions in fall or under winter cover. Bull's Blood is Eliot Coleman's red leaf of choice for winter harvest salad mixes. Old variety; its name hints of 19th-century origins when beets were known as blood turnips. Selected around 1840 from the French variety Crapaudine for darkest-colored leaves.

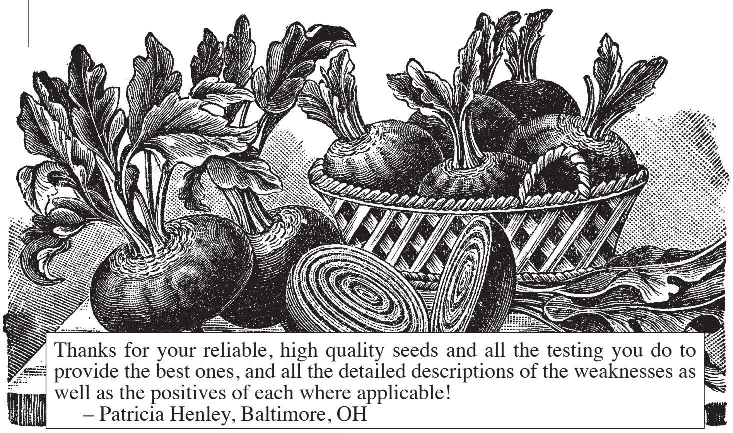
Bull's Blood ②
2186 ***A**: 1/8oz, $2.00* ***B**: 1/2oz, $3.00* ***C**: 1oz, $5.00*
***D**: 4oz, $10.00* ***E**: 1#, $28.00*

Bull's Blood - Organic An improved strain with nice dark foliage, tender and sweet. ⑤

2187 ***A**: 1/8oz, $3.40* ***B**: 1/2oz, $5.60* ***C**: 1oz, $8.00*
***D**: 4oz, $27.00* ***E**: 1#, $95.00*

We Test Beet, Chard, and Sweet Corn Seed for Transgenic Contamination

To help ensure the purity of our seed we test samples of our beets, chard and sweet corn lots for the presence of GMOs. More information on page 20.



Thanks for your reliable, high quality seeds and all the testing you do to provide the best ones, and all the detailed descriptions of the weaknesses as well as the positives of each where applicable!
– Patricia Henley, Baltimore, OH

BEETS of Other Colors

3 Root Grex - Organic (54 days) The genius of Alan Kapuler at work, this is an interbreeding mix of three heirlooms: Yellow Intermediate, Crosby Purple Egyptian and Lutz Saladleaf that absolutely wowed us and continues to get raves from customers. Grex, a term from orchid breeding, means that there is variation within this gene pool that continues to morph. It also means more disagreements in our trialers' evaluations than for most of our selections. Over time we have noticed the extent of variation decrease and the flavor improve. There are three distinct colors in this gene pool: **a pinkish red with some orange in it, a bright gold, and a beautiful iridescent orange**. We were impressed by the unusual vigor, glowing colors and length of these gradually tapered elongated roots. The Lutz influence manifests in their size, as much as 3½" across and 7–8" long. Also produces copious greens. ①

2128 *A: 1/8oz, $2.90* *B: 1/2oz, $6.60* *C: 1oz, $12.00*
D: 4oz, $34.00 *E: 1#, $98.00*

Golden Grex - Organic (54 days) When we first trialed Alan Kapuler's 3 Root Grex in 2004, we loved its golden strain so much that we decided to select it out. It debuted in our catalog in 2009, and we quickly sold out of our five pounds of seed. What with the vagaries of biennial seed production, it was seven long years before we had it to offer again. This time our appreciative customers gobbled up more than 50 lb of seed. Those who love 3 Root Grex will be utterly enchanted. Golden Grex has Lutz in its parentage, as manifested by its green tops, lush growth, somewhat elongated Lutz shape and enormous roots that remain mild and sweet even as they grow up to 6–7" long and 3½" wide. Roots are **golden orange with a blushed orange hip** on the top of the beet. Some, but not all, interiors will have beautiful alternating concentric rings of yellow and red similar to a Chioggia. The stems retain some golden coloration. We anticipate a good supply this season. ①

2129 *A: 1/8oz, $2.80* *B: 1/2oz, $6.60* *C: 1oz, $11.00*
D: 4oz, $32.00 *E: 1#, $90.00*

Boldor (55 days) Boldor's strong germination and vigor roars to life more quickly than the other yellow beets, making it easier to grow, especially under stressful conditions. Its excellent uniform round **rose-gold** roots have duped many into mistaking it for a hybrid. When cooked, Boldor's meat becomes fully light orange with no striations, a blend of carroty sweetness and mild beety depth. Touchstone's flesh color may have more pop, but many of us favored Boldor in taste tests. And it's hard to top its tops: Boldor has healthy short upright light green tops with gold stems and veins. ④

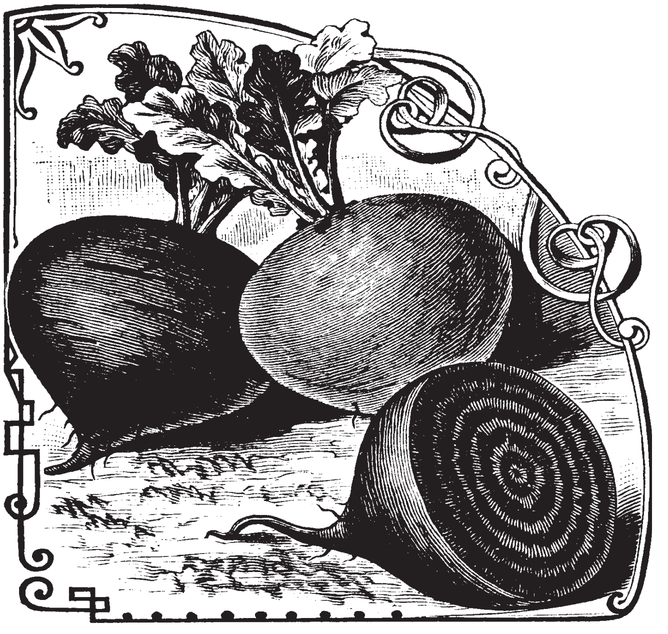
2130 *A: 1/8oz, $3.00* *B: 1/2oz, $7.50* *C: 1oz, $13.00*
D: 4oz, $39.00 *E: 1#, $135.00*

Golden Detroit - Organic (55 days) Sweet and delicious **vibrantly golden** beets with delicious greens. Better size, vigor, taste and disease resistance than Burpee's Golden Beet. Despite its name, does not have the classic round Detroit shape. Instead, more elongated like a pyramid. No green shoulders. ③

2144 *A: 1/8oz, $2.40* *B: 1/2oz, $6.30* *C: 1oz, $9.30*
D: 4oz, $32.00 *E: 1#, $120.00*

Touchstone Gold - Organic (55 days) A refined and reliable **golden** beet with long attractive green tops, Touchstone takes the guesswork out of growing golden beets. Market growers love its dependable germination and uniformly round roots that resist zoning. Like other golden beets, retains its color when cooked and has the sweet flavor prized by aficionados. Avg 1350 seeds/oz. ⑤

2149 *A: 1/8oz, $3.00* *B: 1/2oz, $8.00* *C: 1oz, $12.00*
D: 4oz, $38.00 *E: 1#, $135.00*



Broccoli, Brussels Sprouts, Cabbage & Cauliflower

Brassica oleracea

Culture: Start these brassicas indoors March–May for setting out May–July, or direct-seed in May, or in June for fall crop. Easier as fall crops because many varieties perform poorly in hot summers. For better stands in dry conditions, sow in trenches and keep irrigated.

Minimum germination soil temperature 40°, optimal range 55–95°.

Diseases: For further information see box below.

BL	Blackleg	TB	Tipburn
BR	Black Rot	FY	Fusarium Yellows
BS	Bacterial Speck	WR	White Rust
FW	Fusarium Wilt		

Note: because of a rule issued by Oregon, we cannot ship brassica packets larger than ½ oz (14g) into the Willamette Valley, except those that have tested negative for Black Leg and Black Rot. Our information at press time is in the descriptions here; please check our website for updates.

The brassica seed we offer is seed grade, and it is not fit for human consumption as sprouts. It is not stored in food-safe sanitary conditions before it reaches us. For sprouting seed, please contact your natural foods supplier.

Days to maturity are from direct-seeding; for transplants, subtract 20 days.

BROCCOLI

B. o. (botrytis group)

~100–300 seeds/g. Average varies by cultivar.

Culture: Broccoli dislikes the extreme temperature and moisture fluctuations we have endured in recent seasons. Climate change is making it a challenge to grow even the more heat-tolerant varieties in the summer, while at the same time broadening opportunities in our longer more temperate falls.

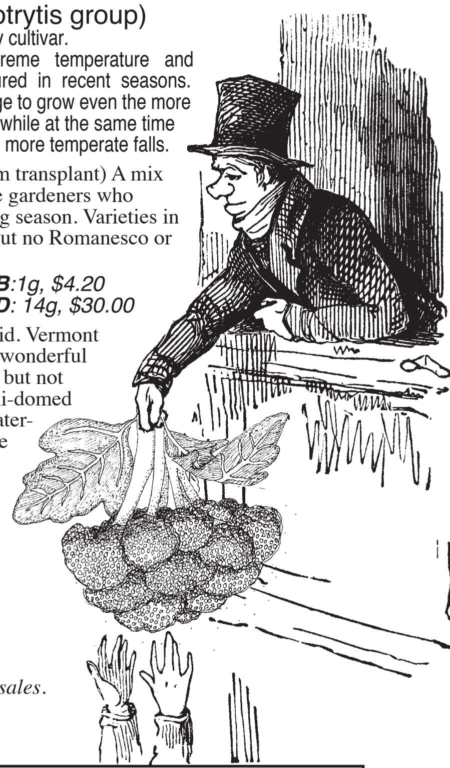
Broccoli Blend (67-95 days from transplant) A mix of varieties in one packet for home gardeners who want broccoli to mature over a long season. Varieties in the mix change with availability, but no Romanesco or Piracicaba.

3326 *A: 0.5g, $2.80* *B:1g, $4.20*
C: 4g, $12.00 *D: 14g, $30.00*

Tendergreen (67 days) F-1 hybrid. Vermont grower Altoon Sultan calls this a "wonderful early broccoli." Exceptionally fast but not stalwart in extreme heat. 6–7" semi-domed heads are lighter weight than the later-season varieties. The medium-large beads do a good job of shedding water. Pleasing blue-green color, tender and delicious flavor. Modest 2–3" (occasionally 4") side shoots follow. ③

3303 *A: 0.5g, $2.50*
B: 1g, $3.90
C: 4g, $9.00
D: 14g, $16.00
E: 28g, $30.00

Limba (70 days) *Dropped—slow sales.*



Pest and Disease Remedies for all Brassicas:
Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Asian Greens (p. 32), Kale & Collards, Kohlrabi (pp. 35-36)

Major pests: Cabbage Looper, Diamondback Moth, Imported Cabbageworm
- Cultural controls: control cruciferous weeds near crop fields, till under crop debris of early season brassicas after harvest.
- Material controls: **8762** Spinosad, **8753-6** Bt, (both p. 139).

Pest: Flea Beetle
- Cultural controls: floating row covers (p.), mulch with straw, time plantings for fall harvested crops only, crop rotation, perimeter trap cropping.
- Material controls: **8735** AzaMax, **8762** Spinosad, **8765-8** Pyganic, (all p. 139).

Pest: Cabbage Root Maggot
- Cultural controls: time planting to avoid first hatching, use row covers, control weeds.

Major diseases: Black Rot, Alternaria Leaf Spot, Blackleg, Club Root, Downy Milldew, White Mold
- Cultural controls: avoid transplanting plants with yellow leaves or v-shaped lesions, crop rotation, destroy crop debris after harvest, avoid overhead irrigation, control weeds, allow for good air movement.
- Material controls: **8702** Actinovate, **8672** copper compounds, (both p.137).

Disease: Head Rot
- Cultural controls: use well-domed varieties, harvest heads when tight, cut stalks at an angle.
- Material control: **8672** copper (p. 137)

Solstice - Organic (71 days) Open-pollinated. Has rapidly gained a following. Its tall leggy plants gave it its alias Oregon Long Neck. Donna Dyrek harvested her first trial head in 2012 right on the summer solstice from an April 11 start. Its mild sweet heads, at 4–5" across, are intermediate between **3327** Piracicaba's and those of the domed hybrids. Among the half dozen OP broccolis in our trial, Solstice was the most uniform and the sweetest, smaller in the summer and tastier in the fall even though they turn purple in frost. Solstice is more noted for its zillion side shoots that follow the main head. Best suited as a fall crop. **OSSI**. Ω ①

3306 ***A****: 0.5g, $2.30* ***B****: 1g, $3.60* ***C****: 4g, $6.30*
D*: 14g, $14.00* ***E****: 28g, $22.00* ***K****: 112g, $76.00*

Covina - Organic (75 days) F-1 hybrid. We've been disappointed that Fiesta seed has been late to its own party the last few years. But Covina's performance in our intense summer broccoli trials brings reason to celebrate. In Maine, 2018 was scorching and dry, while 2019 started cool and wet then jumped suddenly in temps and humidity. Both years were excellent tests of early-slot Covina's summer stress tolerance. The dark green 6–8" heads with medium-fine bead stayed tight and compact without the bubbly lobing that its trial cohorts exhibited in the heat. No matter the weather, the raw and cooked quality remained fully sweet and nutty. Covina does double duty for solid reliable early fall harvests. High resistance to FY. Intermediate resistance to WR. Tested negative for BR and BL. ④ **NEW!**

3308 ***A****: 0.1g, $2.00* ***B****: 0.3g, $3.90* ***C****: 1.2g, $8.00*
D*: 6g, $28.00* ***E****: 12g, $50.00*

Green Super (85 days) F-1 hybrid. Renowned for side-shoot production. At PEAS Farm in Missoula, MT, farm caretaker Ellie Costello deemed this midseason broccoli "phenomenal." Despite challenging weather fluctuations, Green Super came through with beautiful long-holding 7" wide and 3" deep domes. Has also looked good in midsummer both in Massachusetts and Maine. Holds its deep green pound-plus tight-beaded heads above splayed leaves for easy one-chop harvest. After the primary cut, the second growth creates vigorous side heads, not ho-hum shoots. Super's healthy compact form begs to be snugly planted in efficient successions. Costello loved "Super Broc" roasted, and we enjoyed its excellent flavor and texture raw. Good eating combined with exemplary performance and space saving. ③

3309 ***A****: 0.5g, $2.40* ***B****: 1g, $3.60* ***C****: 4g, $7.00*
D*: 14g, $16.00* ***E****: 28g, $28.00*

Green King (85 days) F-1 hybrid. Exceptionally tender, King has reigned in our broccoli taste tests for more than 20 years. It also scores high for its consistent yield of high-quality blue-green domed 8" heads with rather large beads. Market growers appreciate its healthy vigorous plants and uniform ripening. Side shoots aren't plentiful but are big enough to be marketable. Tolerates some heat, although not a midsummer monarch. ③

3311 ***A****: 0.5g, $2.60* ***B****: 1g, $3.80* ***C****: 4g, $9.00*
D*: 14g, $18.00*

Fiesta (86 days) *Dropped*. (Sorry, Marcelle!) Try **3308** Covina.

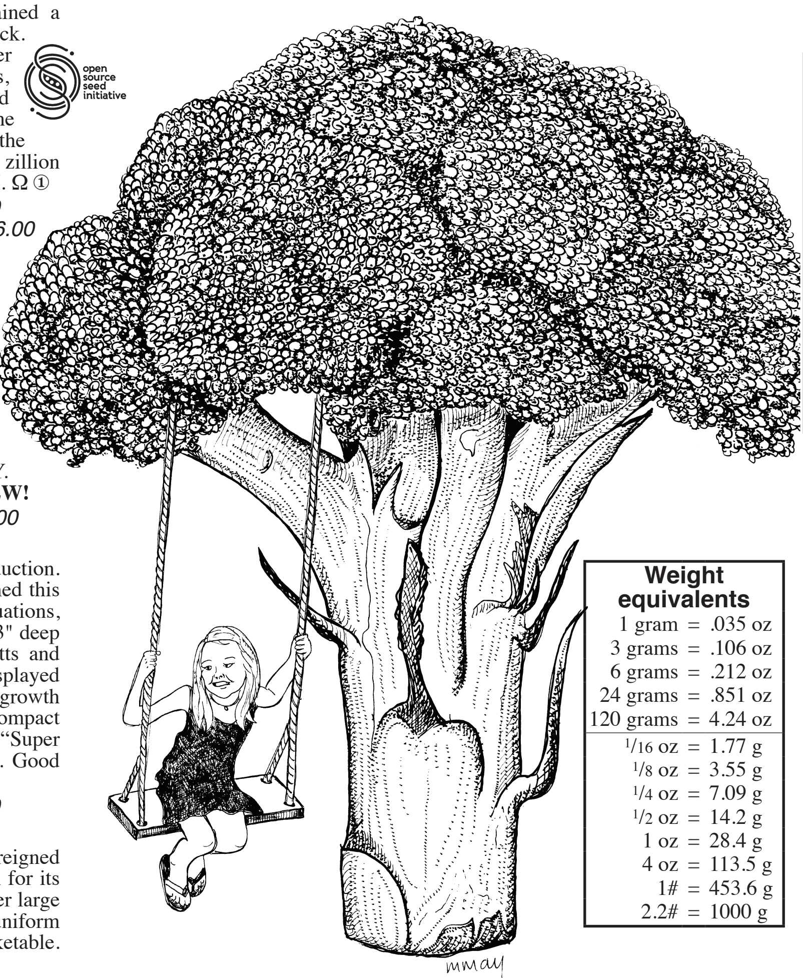
Bay Meadows (89 days) F-1 hybrid. Superb performance in hot conditions! Bay Meadows is your best bet for summer broccoli. Well-domed 6–8" heads with blue-green beads atop strong plants. "Another leap in productivity, beautiful dark green heads," praises Alan LePage. It was the lone survivor in our 2018 summer broccoli trial after the cold drought of May slammed into a scorching June. Other varieties buttoned up, developed weird misshapen heads or otherwise melted down. Performed well for Adam Tomash and June Zellers in the very hot 2012 midsummer, ripening "without a hiccup" and with great taste and appearance. If you sidedress plants after cutting the main heads, they will give robust side shoots huge enough to pass as main heads, says LePage. Tested negative for BR and BL. ⑥

3313 ***A****: 0.5g, $3.10* ***B****: 1g, $4.00* ***C****: 4g, $10.00*
D*: 14g, $22.00*

Gypsy (91 days) F-1 hybrid. This rugged variety carries the misfortune of being given a name that primarily serves as a racial slur against Romani people, an ethnic group that has faced persecution, enslavement, and genocide across Eurpoe. This regrettably-named broccoli is very uniform, very consistent, and has the ability to thrive in many different environments —holds up reasonably well in the heat of summer, the cool of autumn, and in less-than-stellar soil. Reliable producer of medium-green large dome-shaped 8" heads with medium-tight beads that shed water well. Stems and plants capable of growing massive; Adam Tomash harvested one head weighing 2.7 lb. From a May 15 indoor start, he cut his first main head on Aug. 14. Donna Dyrek's was a little later on Sept. 2. Our trialers rate its flavor as excellent, sweet and tender. Sparse producer of side shoots. This variety is produced by cell fusion. Although considered a form of genetic engineering in Europe, the cell fusion technique used to breed this variety is a traditional breeding technique that does not employ recombinant DNA technology, and thus is designated by an NOP ruling as premitted in organic production. Tested negative for BR and BL. Tolerant to DM. ⑤

3315 ***A****: 0.5g, $3.00* ***B****: 1g, $4.30* ***C****: 4g, $10.00*
D*: 14g, $28.00* ***E****: 28g, $53.00*

> Thank you again for working so hard to provide us all with seed buying peace of mind.
> – Sam Carter, Sheffield, VT



Weight equivalents

1 gram =	.035 oz
3 grams =	.106 oz
6 grams =	.212 oz
24 grams =	.851 oz
120 grams =	4.24 oz
1/16 oz =	1.77 g
1/8 oz =	3.55 g
1/4 oz =	7.09 g
1/2 oz =	14.2 g
1 oz =	28.4 g
4 oz =	113.5 g
1# =	453.6 g
2.2# =	1000 g

Waltham 29 (92 days) Open-pollinated. For fall harvest only. Developed in 1951 and long considered the standard OP fall broccoli. We've found a reliable strain that consistently produces 6" heads with medium beads on attractive stocky 20" plants. Waltham delivers good-sized central heads, but no side shoots. Caution: not suitable for summer crops; will not head properly in heat. ②

3320 ***A****: 2g, $1.50* ***B****: 4g, $2.00* ***C****: 14g, $3.50*
D*: 28g, $4.80* ***E****: 112g, $7.00* ***K****: 448g, $18.00*

Arcadia (94 days) F-1 hybrid. Once Vermont grower Alan LePage's favorite summer broccoli, he still regards workhorse Arcadia "a great variety for wonderful first heads." Big rugged Arcadia rocks in conditions that reduce other broccolis to compost, standing up not only to some heat, but also to rot, mildew and cold stress. Arcadia's gently mounded dome-shaped frosty bluish-green heads of very refined small beads are consistently marketable and hold a long time. Tested negative for BR and BL. ⑤

3322 ***A****: 0.5g, $2.60* ***B****: 1g, $4.20* ***C****: 4g, $11.00*
D*: 14g, $24.00* ***E****: 28g, $45.00*

Millennium (94 days) F-1 hybrid. Like the Millennial generation, this broccoli might be a little slow to mature but it shows amazing resilience and staying power under stress. Heat, cold, wet, dry, summer or fall, Millennium rebounds quickly and continues its steady journey to green-headed excellence. We've found this broc's crazy-weather tolerance equal to or better than Bay Meadows. This means less helicopter gardening and less worry about dreaded button-heading and bolting. Millennium's large 7" wide deep green heads are very finely beaded, high domed with no lobing. Retains its deep green color post-harvest. Raw or steamed, we find its flavor sweet, nutty and mild. Fall harvest matures five days later. Tested negative for BR and BL. ⑤ **NEW!**

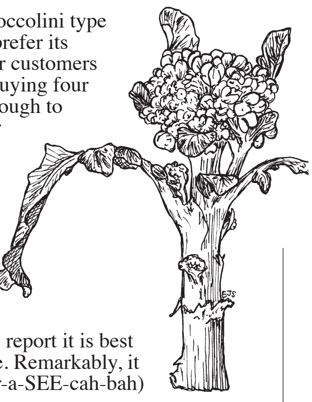
3307 ***A****: 0.1g, $2.00* ***B****: 0.3g, $3.90* ***C****: 1.2g, $8.00*
D*: 6g, $28.00* ***E****: 12g, $50.00*

Umpqua - Organic (95 days) Open-pollinated. For fall harvest only. Handsome uniform dark-green 5–8" heads with large beads size up quickly. A great producer of abundant side shoots will provide a long harvest window. Excellent taste along with stress-tolerance make Umpqua an ideal home-garden variety for the fall. Developed in 1990 by Tim Peters, gets its name from the Umpqua River in Oregon. Tested negative for BL. **Breeder Royalties.** ①

3325 ***A****: 2g, $4.00* ***B****: 4g, $6.00* ***C****: 14g, $13.00*
D*: 28g, $21.00* ***E****: 112g, $60.00*

Key to symbols (❊ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

NON-HEADING BROCCOLI

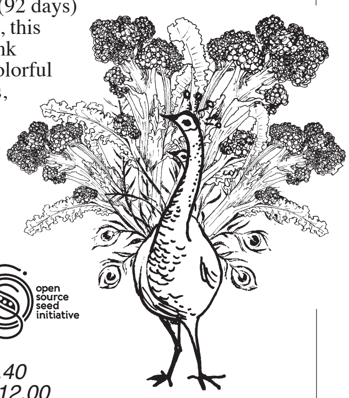


Piracicaba (56 days) Open-pollinated. This broccolini type has garnered many accolades. Several growers prefer its flavor to that of hybrid broccoli and noticed their customers increasingly choosing it instead. "People were buying four or five bunches at a time and I couldn't bring enough to market," observed Carol Thomas of Sweet Briar Herb Farm in Onalaska, WA. About halfway between a heading broccoli and a broccoli raab, these succulent tender small green heads with very large beads make delightful raw eating. Very loose heads, lots of side shoots, sweet stalks. Even the fairly large leaves make excellent greens. Garden writer Barbara Damrosch found it delicious steamed. Alan LePage says sidedressing it in the summer yields great cuttings in the fall. NY State trialers report it is best as a fall crop with relatively good frost tolerance. Remarkably, it was bred in Brazil in the city of Piracicaba (peer-a-SEE-cah-bah) to withstand heat. ②

3327 *A: 2g, $3.00* *B: 4g, $5.00* *C: 14g, $11.00*
D: 28g, $17.00 *E: 112g, $50.00* *K: 448g, $180.00*

Burgundy (75 days) F-1 hybrid. We became enamored of this Bejo Seeds sprouting type when our summer trial of standard green-headed broccoli was torched by dry heat. In contrast, Burgundy's huge and healthy green plants built loose central crowns of indigo that slowly spread to long green-stemmed spires topped with namesake-colored stand-alone florets. Over 3 hot weeks, Burgundy allowed steady harvests for our trial tasters. "LOVE this!" was the unanimous refrain when they enjoyed the tender sweet green stems and dark sprouts both raw and lightly steamed. A further fall trial showed even better lasting production and flavor. Burgundy's broad temperature tolerance lends itself to succession transplanting from very early spring through late summer for savvy gardeners and market growers. Tested negative for BR and BL. ④

3328 *A: 20 seeds, $3.40* *B: 40 seeds, $5.60*
C: 100 seeds, $8.00 *D: 500 seeds, $35.00*
E: 1,000 seeds, $65.00 *K: 5,000 seeds, $300.00*



Purple Peacock Gene Pool - Organic (92 days) Open-pollinated. Best grown for fall harvest, this gourmet ornamental edible is a cross by Frank Morton of a large green broccoli with two colorful kales. More uniform than previous iterations, yet still somewhat variable. Wavy-looking deeply cut purple leaves with rounded edges are punctuated by pink veins. The sweet broccoli flavor of the head and abundant side shoots are augmented by the kale-like qualities of the leaves, especially as fall delivers its first cold nights. An imposing plant 2½' tall, spreading 2–3' makes quite a spectacle. Purple leaves, stems and heads cook to a dark green or can be enjoyed raw in salads. **OSSI.** Ω ①

open source seed initiative

3316 *A: 0.5g, $2.30* *B: 1g, $3.40*
C: 4g, $6.00 *D: 14g, $12.00*
E: 28g, $20.00

Chinese Broccoli, **3204** Kailaan: see Asian Greens on p. 32.

ROMANESCO BROCCOLI

One of the most beautiful of plants when grown well. Chef Odessa Piper called the cone-shaped somewhat irregular whorl of chartreuse florets "broccoli on acid."
Culture: Should be started indoors in March or April and transplanted out in late May or June. Needs adequate spacing, a long season and extremely high soil fertility. Well-grown plants are huge and need about 10 sq ft each. Be patient; needs a long season but doesn't mind cool weather.

Veronica (98 days) F-1 hybrid. Fall production only. A reliable and refined version of Romanesco broccoli. Combining sweetness with a fine brassica zing, Veronica is tender and delicate as a crudité and quite flavorful cooked. First ripened Sept. 16-19, 2013, for trialer Donna Dyrek and was still producing in mid-October from a May 27 greenhouse start. The supplier claims average weight is 4 lb per head, but in conditions of high fertility and wide spacing, Dyrek's averaged 8" across and 5 lb. Resists purpling and red tipping during heat. Tested negative for BR and BL. ④

3329 *A: 0.1g, $3.60* *B: 0.3g, $8.80* *C: 1.2g, $24.00*
D: 6g, $90.00

BROCCOLI RAAB *B. rapa* (ruvo group)

Quarantina (40 days) Open-pollinated. *Quarantina* means '40 days.' Raab, also known as Rapini here and Broccolo Asparago in Italy, is a non-heading version of broccoli with a more pungent flavor. Harvest young stems, leaves and small flower buds. Steam, stir-fry or add to salads. People try this as a spring crop with poor results. If the flea beetles don't get you, the summer heat will. Raab is much better as a fall crop. It will hold a lot longer and cool nights improve the flavor. ~600 seeds/g. ②

3485 *A: 2g, $2.00* *B: 4g, $2.80* *C: 14g, $4.80*
D: 28g, $7.60 *E: 112g, $16.00* *K: 448g, $48.00*

BRUSSELS SPROUTS

B. o. (gemmifera group) **~100-200 seeds/g.**

Culture: Start indoors by early April and transplant into very fertile soil. Give each plant about 9 sq ft. Very hardy; flavor is improved by frost and sprouts can be harvested past the first snowfall. Top plants in early September to encourage sprout development.

Days to maturity are from date of seeding. Subtract 20 days for transplants.

Hestia (93 days) F-1 hybrid. The second brussels sprouts variety ever to win an All-America award (2015), Hestia was named for the Greek goddess of hearth and home. Though the award was for the Southeast and Mountain/Southwest regions, she proved extremely well-adapted to the Northeast where she thrived in CR's 2015 plots. Hestia claims the unusual distinction of both ripening early and holding quality on the 24–30" tall plants. It doesn't succumb easily to disease. Develops higher sugars than most sprouts in warmer weather, making for succulent eating. A good variety to start the season, its 1" sprouts are medium size. Tested negative for BR and BL. ④

3334 *A: 0.25g, $3.70*

Speedia (98 days) F-1 hybrid. Our 2016 brussels sprouts trial had us angling away from Hestia toward Speedia. Its vigorous and extra sturdy 30–36" stalks never tilted, its large to very large sprouts were bountiful and tasty, and its more open foliage resulted in much less gross aphid rampage. We've trialed Speedia every season since and are fully convinced that it's a superior variety for easy and bold-sized sprouts, unseating Hestia in the early "half tall" brussels niche. And as the fall aphid problem in brassicas has worsened for many of us, compact Speedia has continued to be a very low-presence variety. High resistance to FY. Tested negative for BR and BL. ④ **NEW!**

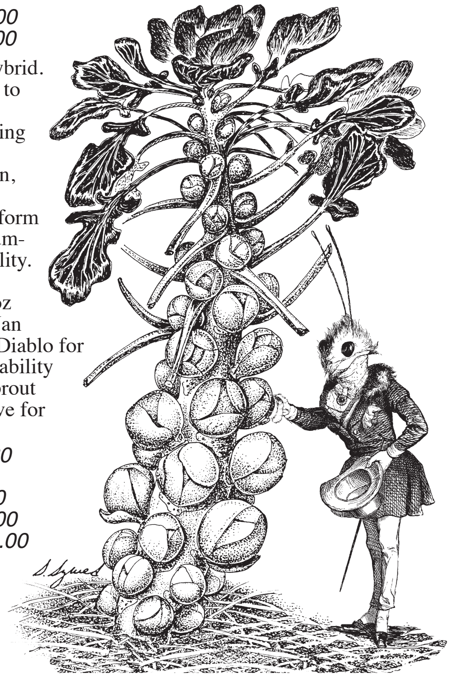
3335 *A: 0.25g, $4.20* *B: 0.5g, $6.50* *C: 1g, $11.00*
D: 4g, $32.00 *E: 16g, $120.00*

Gustus (99 days) F-1 hybrid. Steady sales increases have made Gustus our #1 brussels sprouts variety. CR's find from 2009, the coldest summer in forty years. He had never grown such robust brussels sprouts plants before or since. The late Michael Zuck of Bangor, ME, judged Gustus as "the absolute pinnacle of the brussels sprouts breeder's art. The quality of the sprouts is amazing, very dense and sweet. No other sprout compares with Gustus." The sprouts are medium-sized, slightly oval, remarkably uniform (perfect for market) and grow large farther up the stalk after the plants get topped. In 2009 they showed not a hint of rot, even after two hurricane rains. A representative sample of 10 weighed a respectable 6 oz. Won our taste test with its smooth texture and no cole-ish aftertaste. Enjoy them with gusto! Tested negative for BR and BL. ⑥

3339 *A: 0.5g, $4.60* *B: 1g, $7.00* *C: 4g, $24.00*

Falstaff (102 days) Open-pollinated. We loved the beauty of red varieties such as Rubine, but never could get a single sprout to mature until we found Falstaff. Falstaff is not only ornamental but also extremely savory. Cooking brings out its tender nutty sweetness while allowing it to retain bluish-purple pigments. It cooks quickly, though, so don't overdo it. Good production one year, only fair the next, sprouts with beautiful color, wide size variation, but most quite small compared to the green hybrids, and can be late coming. The color intensifies after a hard frost. The plants tend to sprawl. ③

3341 *A: 0.5g, $2.50*
B: 1g, $3.50
C: 4g, $8.00
D: 14g, $18.00
E: 28g, $31.00



Diablo (110 days) F-1 hybrid. Home gardeners have yet to give this devil its due. It might be a little slow getting going, but for those who have a long enough season, Diablo is dependable and productive. These are uniform good-looking solid medium-sized sprouts of good quality. A representative sample of 10 sprouts weighed 7 oz in our trial. CSA grower Jan Goranson recommended Diablo for its disease resistance and ability to produce a consistent sprout every time. Tested negative for BR and BL. ④

3344 *A: 0.5g, $3.80*
B: 1g, $7.00
C: 4g, $25.00
D: 14g, $76.00
E: 28g, $140.00

CABBAGE

B. o. (capitata group) **~150–350 seeds/g.**

Culture: Exposure to hoarfrost is good for cabbages. They double their sugar content after one month of cold.

Days to maturity are from date of seeding. Subtract 20 days for transplants.

GREEN CABBAGE

Golden Acre (62 days) Open-pollinated. The best choice for an early OP cabbage that's not a pointy-headed intellectual from Jersey. A selection of the Copenhagen Market type billed as "new…the earliest of the round-headed cabbages" in the 1928 Jerome B. Rice catalog. Grey-green heads, some with a faint reddish tint in the outer leaves, average 3–5 lb. Our trialers once again found them big, round and solid with white interiors. 75% were marketable. In taste tests, our staff gave them high marks as sweet and tender with spicy flavor that developed buttery undertones after cooking. Notes included several "yums" and one "great!" Short stems with sparse wrapper leaves and medium-sized core keep plants compact. Not long standing. ②

3352 ***A**: 2g, $1.90* ***B**: 4g, $2.60* ***C**: 14g, $4.00*
***D**: 28g, $5.00* ***E**: 112g, $10.00* ***K**: 448g, $20.00*

Early Jersey Wakefield (63 days) Open-pollinated. This classic early cabbage originated in England in the early 1800s, was first grown in America in 1840, perfected by a German truck gardener in northern New Jersey and released by Peter Henderson in 1868. Henderson in 1902 asserted that "it was more largely grown than all other first early cabbages combined" and called it an "old reliable always to be depended upon for its uniformity in earliness and crop." Anne Elder considers it a great fall cabbage as well. Wakefield's compact medium 2–3 lb heads are distinctively pointy. The pyramidal shape with sparse outside foliage permits close spacing. Tender flavorful waxy-looking Wakefield is still prized by home and market gardeners. Shows some variation in our lot grow-outs. Not for storage. ④

3355 ***A**: 2g, $1.80* ***B**: 4g, $2.40* ***C**: 14g, $3.80*
***D**: 28g, $5.00* ***E**: 112g, $9.00* ***K**: 448g, $18.00*

Murdoc Green Cabbage (80 days) F-1 hybrid. In our 2018 summer trials of glorious pointy-headed green cabbage, patient and perseverant Murdoc transcended the conical competition. We watched Murdoc and its other "pointer sisters" come into sweet delicate early 3–4 lb size, many with good flavor. Within a week though, nearly all had shredded in the field, frazzled by a humid scorching mid-July. Meanwhile, Murdoc wrapped and grew unfazed, burgeoning into a huge weed-suppressing plant with mind-boggling 8–10 lb jaunty fat magician's-cap–shaped heads. Lightly crisp and slightly melting with a tang of spice laced into the mild brassica sweetness, breeder Bejo Seeds proclaims it perfect for Bavarian weisskraut (a sweet and sour braised cabbage concoction). We found ourselves keeping a huge Murdoc head around just to admire! Tested negative for BR and BL. ④ **NEW!**

3370 ***A**: 0.1g, $2.40* ***B**: 0.3g, $4.00* ***C**: 1.2g, $10.00*
***D**: 6g, $40.00*

Storage #4 (80 days) F-1 hybrid. Our first trials of this dark green 4–8 lb cabbage were more than two decades ago, but #4 has stored well in my memory ever since, and not on account of its catchy name! The physical cabbage won't store as long as my memory of it did, but it will be firm and edible come spring and with much better flavor than typical supermarket fare at that season. Marie Merkel of Surry, ME, thanks us for adding it: "Never splits—still crisp and tasty next July." Delicious solid head holds well during the weather stresses of fall harvest. Widely adapted but because of its earliness relative to other storage cabbages, we recommend planting a bit later if storage is your intent. Tested negative for BR and BL. Resists FY. ⑤

3365 ***A**: 0.5g, $3.20* ***B**: 1g, $5.00* ***C**: 4g, $15.00*
***D**: 14g, $42.00* ***E**: 28g, $75.00*

Tribute (103 days) F-1 hybrid. This spectacular autumn cabbage made gigundo solid round 10–12 lb blue-green heads reaching 10" across that figuratively jumped out at me even though I wasn't planning to add another cabbage. 100% were marketable. Earlier and larger than Bartolo with huge wrapper leaves that provide perfect ground cover to stifle weeds. Not a great keeper, softening and splitting by December, so enjoy in fall when it's sweet and crunchy raw with a mild tang and cabbagey taste in its ribs. Good flavor for such a big cabbage, makes great sauerkraut. Remained sweet with a subtle brassica flavor when cooked, a close second to **3352** Golden Acre in our test. Fully ripe around Oct. 1 from a July 10 transplanting. Give this champ some space as well as Tribute. ③

3390 ***A**: 0.5g, $2.30* ***B**: 1g, $3.40* ***C**: 4g, $7.00*
***D**: 14g, $12.00* ***E**: 28g, $22.00*

Gunma (110 days) F-1 hybrid. Named for a prefecture on Japan's Honshu Island known for cabbage production. Our choice for a superior flat-topped green cabbage ideal for cooks and gourmets, good for kraut and kimchi. Good moisture content makes sufficient brine so you don't need to add more to the kraut. Large heads (avg 5–7 lb but can get up to 11–13 lb) grow nearly 1' across, yet remain almost coreless. Although ready on Aug. 2 from a May 21 transplanting, these cabbages sat in the field for two months without splitting. Sweet tender wrapper leaves suitable for using raw for cabbage wraps and rolls. Outer leaves can't hold up once nighttime temperatures plummet to the 20s, so not for storage. Tested negative for BR and BL. Resists FY, TB. ④

3392 ***A**: 0.2g, $3.20* ***B**: 0.4g, $5.00* ***C**: 1g, $8.40*
***D**: 4g, $28.00* ***E**: 28g, $170.00*

Bartolo (115 days) F-1 hybrid. An excellent cabbage that stores till May. Sits high off the ground with large hard round 4–8 lb dark green heads, well protected by waxy thick serrated wrapper leaves. Very high-yielding and a beautiful plant in our trials, 90% marketable heads. Robust peppery flavor. Tested negative for BR and BL. Tolerates BS and TB. ④

3394 ***A**: 0.5g, $4.40* ***B**: 1g, $7.50* ***C**: 4g, $25.00*
***D**: 14g, $80.00* ***E**: 28g, $150.00*

January King - Organic (180 days) Open-pollinated. This old variety developed in northern Europe more than a century ago still reigns supreme as an outstanding OP cabbage in a field now dominated by hybrids. The tasty large 3–5 lb green slightly flattened semi-savoyed heads with purple wrapper leaves are extremely cold hardy and can overwinter in Zone 7 and warmer. Farther north, where January really tests our mettle, this king is unfazed by temperatures as low as 5°. Start early, harvest late—this is slow food at its best! ① **NEW!**

3399 ***A**: 0.5g, $2.40* ***B**: 1g, $4.00*
***C**: 4g, $10.00* ***D**: 14g, $21.00* ***E**: 28g, $36.00*

RED CABBAGE

Ruby Perfection (85 days) F-1 hybrid. This fancy midseason type has produced some of the loveliest cabbage we've ever seen: solid deep purple-red spherical heads averaging 4–6 lb, occasionally reaching 8 lb. "Hard as a rock," observed Jason Kafka. A great storage cabbage; will keep till May in the root cellar. Survived outdoor temperatures of 18° double-covered under Agribon 19. Low tolerance to BR, but tested negative for BR and BL. ⑤

3375 ***A**: 0.5g, $4.20* ***B**: 1g, $6.00* ***C**: 4g, $18.00*
***D**: 14g, $58.00* ***E**: 28g, $105.00*

Mammoth Red Rock (100 days) Open-pollinated. A large late cabbage with firm 5–8 lb blocky broadened globe heads, 8–10" across and red-purple to the core. Rated as a good keeper in storage with a crisp sweet taste. This favorite goes back to 1889. Vaughan in 1904 called it "the surest heading red cabbage ever introduced." R.B. Dunning & Co. of Bangor, ME, sold a packet for a nickel and an ounce for 35¢ in 1936. ②

3389 ***A**: 2g, $2.00* ***B**: 4g, $2.80* ***C**: 14g, $4.50*
***D**: 28g, $5.60* ***E**: 112g, $10.20* ***K**: 448g, $26.00*

SAVOY CABBAGE

Melissa (85 days) F-1 hybrid. A gorgeous savoy, with 2–4 lb solid slightly flattened light green heads surrounded by attractive dark blue-green waxy wrapper leaves. Can grow twice that size given high fertility and wide spacing. A vigorous grower even in cold wet conditions, Melissa ripens around Sept. 1 from early June transplanting. Flavor improves with cold weather. Adapted to close spacing. For dependability, uniformity, attractiveness and taste, Melissa can't be topped. Tested negative for BR and BL. FY, TB tolerant. ④

3378 ***A**: 0.5g, $4.50* ***B**: 1g, $6.60* ***C**: 4g, $24.00*
***D**: 14g, $70.00* ***E**: 28g, $130.00*

Frigga (86 days) Open-pollinated. Usually grows compact 3 lb round 6" balls, though under wide spacing and high fertility can achieve double that size. As handsome a plant as I ever hope to see with highly savoyed dark green wrapper leaves curling tightly around the core. Real cabbage flavor with some sweetness, texture on the dry side. Holds in the field for a month after maturity. For savoy connoisseurs. ③

3380 ***A**: 2g, $2.50* ***B**: 4g, $4.00* ***C**: 14g, $8.00*
***D**: 28g, $12.00*

Des Vertus (95 days) Open-pollinated. From the 1800s, also known as Large Drumhead Savoy. French variety features medium-green large heads averaging 4–6 lb. Mild, juicy and semi-sweet. Moderate storage. Cold-tolerant into fall; may overwinter in warmer climes. ②

3384 ***A**: 2g, $2.20* ***B**: 4g, $3.80* ***C**: 14g, $7.00*
***D**: 28g, $12.00* ***E**: 112g, $32.00* ***K**: 448g, $115.00*

Deadon (105 days) F-1 hybrid. While its lovely savoyed pinkish-purple outer leaves dusted with grey are often used for garnish, its light green interior core is great for salads and cole slaw. The outer color intensifies and the flavor sweetens as temperatures cool in the fall. Sets solid medium-large 3–6 lb heads of 6–10" diameter with densely packed innermost leaves that are very sweet with a spicy nip. Dead certain to be a flavorful cool-weather treat. Developed as an over-wintering cabbage, and it over-wintered in Donna Dyrek's trials, so it can nourish you in spring as well as late fall. Long storage in the root cellar, too. Tested negative for BR and BL. Resists FW, FY. ❆ ④

3391 ***A**: 0.1g, $3.00* ***B**: 0.3g, $5.60* ***C**: 1.2g, $16.00*
***D**: 6g, $65.00*

Wirosa (125 days) *Dropped. Try shorter-season Deadon.*

Chinese Cabbage: see Asian Greens, p. 32.

CAULIFLOWER

B. o. (botrytis group) **~100-400 seeds/g.**

Culture: Cauliflower heads will "button" under stress. Do not allow to get pot-bound; avoid interruptions in growth. Most varieties can't stand the heat and are not suitable for summer production. When heads first appear, bend leaves over curd to prevent discoloring.

Days to maturity are from direct seed. Subtract 20 days for transplants.

Fioretto 60, flowering stick type (60 days) F-1 hybrid. This great cauliflower is determined by both a luxury of fine-textured curd and tender nutty stems. Developed from lesser-known tropical and Italian lines of annual summer cauliflower, Fioretto's breathtaking coral-like beauty and unusual stick-type form was an unexpected surprise in our 2016 trials. The Fioretto class produces a large slightly flattened 8–14" head with creamy curds atop a somewhat loose bouquet of longer stems. As the head expands into slightly spaced irregularity, each floret gently extends into a single-serve branch that should be harvested individually. In Japan, where this variety originated, it's enjoyed as a pickled delicacy. When cooked, the tasty stems brighten into a lime green to offset the sweet button-like florets of curds. Perfect for cutting-edge chefs, markets, and your own salads, pickles and sautées. Plant when temps have warmed so plants don't head too early. ⑤

3402 ***A***: *0.1g, $3.40* ***B***: *0.2g, $5.60* ***C***: *1g, $22.00*
D: *2g, $34.00* ***E***: *4g, $64.00*

Charming Snow (60 days) F-1 hybrid. Our first early cauliflower. Its short white stems bear compact 1–2 lb uniform round firm white tight heads with fine beads. Though seeded as late as July 8, these were already heading for Donna Dyrek by the first of September. *Note: Heads not as dense or substantial as the maincrop varieties*. ③

3404 ***A***: *0.5g, $2.30* ***B***: *1g, $3.60* ***C***: *4g, $7.50*
D: *14g, $15.00* ***E***: *28g, $26.00*

Snow Crown (70 days) F-1 hybrid. Nothing comes close to Snow Crown for the second-early slot. Makes cauliflower a cinch to grow. Dependable producer of uniform 6–7" heads early summer through October. Drought resistant. Sometimes develops pink heads in adverse conditions. 1975 AAS from Takii. Tested negative for BR and BL. ⑤

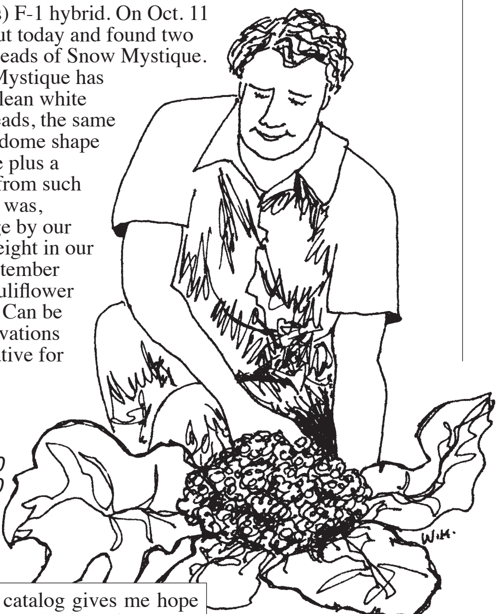
3410 ***A***: *0.5g, $4.40* ***B***: *1g, $6.80* ***C***: *4g, $22.00*
D: *14g, $68.00* ***E***: *28g, $120.00*

Snowbowl (83 days) F-1 hybrid. A new college football bowl game? Nope, Snowbowl is a pun on the old OP Snowball varieties, a huge improvement over all of them and likely national champion in the early-midseason class. Rated the best-flavored cauliflower in our trials, "a real wowser" says Nikos. Delicate, chewable, tender, buttery, fine-textured and creamy cooked, report our tasters. Wrapper leaves extend upward, not out, contributing to the extra white color of these well-protected curds. Maturity is very uniform, all within one-week. For best quality, inspect your patch frequently and be prepared to harvest at 5–6" when these dense domed 1½ lb heads are very tight. Compact plant habit permits close 20–24" spacing for high yields and quick successions, a big plus for market growers. 22" tall. Have not tested for summer harvest but may be worth a small trial. Tested negative for BR and BL. ⑤

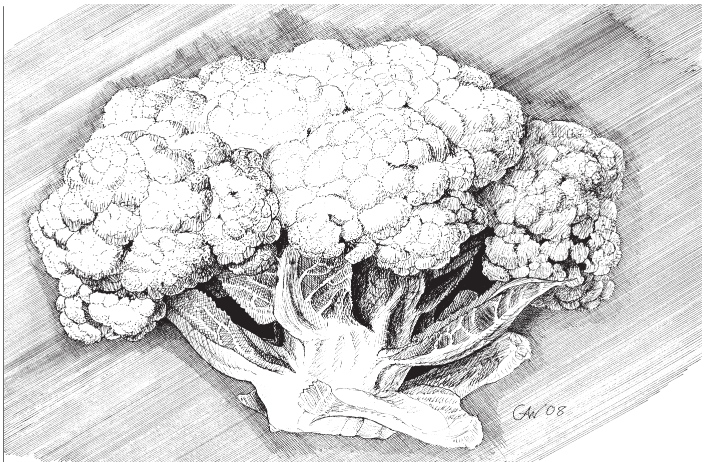
3425 ***A***: *0.5g, $3.40* ***B***: *1g, $5.20* ***C***: *4g, $18.00*
D: *14g, $50.00* ***E***: *28g, $90.00*

Snow Mystique (93 days) F-1 hybrid. On Oct. 11 our trialer noted, "I went out today and found two absolutely beautiful large heads of Snow Mystique. Big, tight and gorgeous!" Mystique has all the attributes we love: clean white dense well-proportioned heads, the same good upright habit and the dome shape to ward off excess moisture plus a tender flavor not expected from such a massive plant. Massive it was, heads rated at 1.8 lb average by our supplier, but double that weight in our trial. Perfect for end of September and early October when cauliflower is at its best in our climate. Can be slow-growing in higher elevations and cold spots. Tested negative for BR and BL. ⑤

3428 ***A***: *0.5g, $3.40*
B: *1g, $5.00*
C: *4g, $18.00*
D: *14g, $52.00*
E: *28g, $96.00*



> The content of your catalog gives me hope in the throes of winter and this regime.
> – Claire Wasser, High Falls, NY



Candid Charm (95 days) F-1 hybrid. We have in the past bragged about the awesome 6–9 lb heads Candid Charm sometimes produces. Now Barbara Weiss of Mariaville, ME, joins us in these plaudits. "I harvested it by the wheelbarrow load literally. Absolutely huge delicious heads," she says. Remarkably consistent in maturing marketable 4–5 lb snow-white curds within a 3–4 day window even in marginal years. Adapted to fall production only, when it's easy to grow and less fussy. Tested negative for BR and BL. ⑤

3438 ***A***: *0.5g, $3.50* ***B***: *1g, $6.30* ***C***: *4g, $20.00*
D: *14g, $64.00* ***E***: *28g, $120.00*

Symphony (96 days) F-1 hybrid. Immense heads, up to a foot across, the classiest as well as the largest cauliflowers trialer Donna Dyrek ever grew, as tight as they were enormous, with no hollow stems. She raved about their sweetness and lack of brassica bite. Dyrek started the seeds on May 30, transplanted them on July 8 and harvested Symphony the 2nd week of October 2007. Requiring a long season, Symphony is for fall harvest only. Tested negative for BR and BL. ⑥

3440 ***A***: *0.2g, $3.20* ***B***: *0.4g, $5.00* ***C***: *1g, $7.60*
D: *4g, $24.00* ***E***: *28g, $115.00*

CAULIFLOWER of Other Colors

Flame Star (68 days) The first discovery of an orange cauliflower was in 1970 in a field of white cauliflower near Toronto. This carotene-rich mutant was smaller and less flavorful than ideal, so breeding work began to increase size and flavor, while keeping the unique color. Michael Dickson did this cross breeding and selection for decades at the Experimental Station in Geneva, NY. One of the early releases was Cheddar, a variety carried by Monsanto, so one we would not sell despite its obvious appeal. But now we've discovered Flame Star, whose **pastel orange** color is not only attractive but also makes it many times richer in vitamin A than its paler cousins. With 7" uniform heads of smooth dense curds on sturdy plants, this highly adaptable variety consistently performs well in a range of conditions, especially heat stress. A good choice for specialty markets. I'm a stickler for good taste in raw cauliflower and Flame Star gets high marks for a rich sweet flavor whether raw or cooked. By the end of our warehouse taste trial, Flame Star had disappeared. That's the ultimate gold star. Tested negative for BR and BL. ⑥

3412 ***A***: *10 seeds, $2.60* ***B***: *40 seeds, $7.50*
C: *100 seeds, $14.00* ***D***: *500 seeds, $50.00*
E: *1,000 seeds, $90.00*

Vitaverde (76 days) F-1 hybrid. With compact, somewhat raised and clustered, bold **bright green curd**, Vitaverde cauliflower looks almost ready to boil over into romanesco form. The 1.8 lb heads measure 6" wide by 4¼" deep, adding heft to eye-catching color. Raw, Vitaverde is crunchy and dense like a romanesco, not grainy or ricey. The sweet mild cauliflower flavor has only a hint of sharpness. Steamed, the texture becomes smooth and a bit firm, and the flavor mild, savory and satisfying. Its lively green is slightly diminished to a warm rich shade, keeping accent and excitement on the plate and the palate. Tiny seeds, nearly 40 per packet. ②

3413 ***A***: *0.1g, $3.50* ***B***: *0.2g, $4.50* ***C***: *1g, $19.00*
D: *4g, $70.00* ***E***: *16g, $250.00*

Graffiti (80 days) F-1 hybrid. As if aliens had landed in the cauliflower patch, the **brilliant—almost psychedelic—purple** of these good-sized heads is decidedly other-worldly and will draw customers to your market display. Vibrant Graffiti boasts a true cauliflower head on large plants with dark green leaves. Resists summer heat and performs even in drought, but very slow to head up in cool weather. Day-glo florets make delightful crudités, a delicious cooked vegetable or colorful kimchi. The color fades to bluish-purple when cooked, but can be preserved by adding a tablespoon of lemon juice to the cooking water. Very expensive seed; packets have roughly 15 seeds. Tested negative for BR and BL. ⑥

3417 ***A***: *0.1g, $4.40* ***B***: *0.2g, $6.50* ***C***: *1g, $20.00*
D: *4g, $72.00* ***E***: *16g, $260.00* ***K***: *32g, $480.00*

CARROTS

Daucus carota

1/8 oz packet sows 35 ft; 1 oz, 280 ft. 1 g packet has more than 600 seeds and sows about 10 ft. Avg 18,000 seeds/oz with significant variations among varieties.

Culture: Very hardy. Early carrots can be sown by late April. Can take up to 3 weeks to germinate; keep rows from drying out for faster emergence. Sow carrots for winter storage in mid-late June. Thinning is critical: At 3" high thin, to 1/2" apart, at 6" thin again to 1–2" apart.

Minimal germination temperature 40˚, optimal range 60–85˚.

Pelleted carrot seed: We are pleased to offer pelleted carrot seed in three varieties. Pellets can save time-consuming thinning for both home gardeners and commercial operations. They can be sown by hand or with precision seeders. Our carrot pellets are size 11.5. Pellets have one major drawback: the process shortens the viable life of the seed. Buy only as much pelleted seed as you need for this season. It will not hold over well. Our pellets use an inert clay coating that is in compliance with NOP standards. Keep pellets cool and dry prior to planting and maintain steady soil moisture during the germination period.

Diseases:

ALTS	Alternaria Leaf Spot	PM	Powdery Mildew
BR	Black Rot	TLS	Target Leaf Spot
LR	Licorice Rot		

ALTS shows up first on the oldest foliage as brown-black spots edged with yellow. Foliage blackens and shrivels as it develops and spreads. Maintaining a good crop rotation is the best preventive.

Days to maturity are from date of seeding.

EARLY CARROTS

Mokum (48 days) F-1 hybrid. Arguably the tastiest carrot for fresh eating in late spring and summer. Repeat winner of our summer taste tests. Mokum's earliness, slenderness and sweetness transcend its flaws. Blunt Amsterdam type that sizes extremely quickly with short weak tops, brittle and not machinable. Should be harvested at 5–6" before the roots push out of the ground and develop green shoulders. Although not a versatile full-season carrot, Mokum merits succession planting so you can enjoy it young throughout the summer. Always the first to disappear from our spring patch. Not for storage. ④

2086 A: 1g, $3.00 B: 3g, $5.50 C: 6g, $8.00
D: 24g, $26.00

Mokum - Pelleted *Not available*. This year's crop was too small to have any pelleted. We recommend Pelleted Coral (below) instead.

Tonda di Parigi (55 days) Open-pollinated. Round Parisian-type carrot. At 1 1/2" Tonda is small with deep orange color and good taste. Best harvested when they are young and tender and very sweet. Enjoy them cooked to maximize their sweetness and to elicit their superb creamy texture. The easiest carrot to grow if you have heavy clay soil. 19th-century heirloom from Paris. Not for storage. ④

2018 A: 1/8oz, $2.60 B: 1/4oz, $4.60 C: 1/2oz, $8.00
D: 1oz, $14.00 E: 4oz, $26.00

Amsterdam #2 (55 days) Open-pollinated. Slender tapered 6–7" roots. Ideal for succession plantings of baby carrots throughout the summer, provided they are given adequate moisture. Not particularly sweet but with a carroty sharpness that leaves a pleasant taste sensation. Crisp and tender with a small core. Not for storage. ②

2024 A: 1/8oz, $2.20 B: 1/2oz, $6.00
C: 1oz, $8.00 D: 4oz, $24.00

Coral (55 days) Open-pollinated. Heron happened upon this hard-to-find Euro specialty carrot in a Spanish seed catalog, where it was mysteriously the only carrot variety offered. We found out why when we sent some trials in 2014 to Detroit's Lafayette Greens where it swept the hybrid and OP competition. Entirely coreless, of distinctive translucent pinkish-orange, Coral won again in our 2016 trial of potential Nelson replacements. Best picked promptly for tender finger-sized Early Nantes–type roots that taper to a semi-blunt tip. The mild sweetness is boosted by a notable aroma, described as "carrot perfume" by staff tasters. With the most upright tall tops of our summer carrot trial, Coral delivers a continental flair to your first picked bunches. ④

Coral Unpelleted

2028 A: 1/8oz, $2.60
B: 1/2oz, $7.80
C: 1oz, $10.00
D: 4oz, $24.00
E: 1#, $72.00

Coral Pelleted NEW!

2029 A: 100 pellets, $2.00
B: 250 pellets, $3.50
C: 1,000 pellets, $6.80
D: 5,000 pellets, $15.00
E: 10,000 pellets, $23.00
K: 25,000 pellets, $48.00

Aranka (56 days) F-1 hybrid. *Aranka* means 'golden' in Hungarian. The discontinuation of Nelson carrot was a loss felt by the early summer snacking and bunching crowd. But our Fedco motto for trialing is "Less mourning, more munching!" For five summers we've grown and eaten a lot of early Nantes/Nelson–class carrots. We found OP Coral, and now we are happy to offer hybrid Aranka! Bejo Seeds, who bred Nelson, packed many of the same excellent traits into Aranka: early orange crunchy sweet eating at 3–5" long. But Aranka's similar short top is stronger and healthier, making harvest and bunching easier. Nelson who? ④ **NEW!**

2094 A: 1g, $3.90 B: 3g, $9.00 C: 6g, $15.00
D: 24g, $45.00 E: 120g, $200.00

Istanbul (65 days) F-1 hybrid. In our search for replacing now-merged Bayer/Monsanto's Sugarsnax carrot, we sunk our teeth into many a bland orange chunk. Who knew that chasing down tasty summer Imperators would take two years and much taste-bud patience? But we found a real winner in breeder Bejo Seeds' sleek Imperator-type Istanbul: 1" at its widest, the 7–9" slender root tapers to a stylish point. In fact the tip is the only "sharpness" this carrot has to offer; uniform, deep orange inside and out, juicy, crisp, sweet, with no bitter tones even in stressful conditions. Istanbul's strong tall healthy tops round out the "bunch" of reasons that reaffirm our co-op's ethical stance against global seed consolidation. I guess you could say we are using the carrot as the stick! Bayer/Monsanto is not the only answer…and it's also not the best one. ④ **NEW!**

2035 A: 1g, $3.60 B: 3g, $8.00 C: 6g, $12.00
D: 24g, $36.00 E: 120g, $160.00

MAIN SEASON CARROTS

Napoli - Organic (55 days) F-1 hybrid. A favored variety for Eliot Coleman's famous candy carrots overwintered in unheated greenhouses. Blunt Nantes type grows 7–8" cylindrical roots with strong medium-sized dark green tops. Crispy, snappy, sweet and juicy with a medium core. "Extra crunchy," rated one of our tasters. Also grows rapidly when sown outdoors in spring and makes a good early bunching carrot. Suitable for fresh market or storage. Good performer in high tunnels.

Napoli Organic Unpelleted ④

2090 A: 1g, $3.20 B: 3g, $8.00 C: 6g, $14.00
D: 24g, $42.00 E: 120g, $185.00

Napoli Organic Pelleted ④

2091 A: 100 pellets, $3.20 B: 250 pellets, $4.60
C: 1,000 pellets, $8.50 D: 5,000 pellets, $19.00
E: 10,000 pellets, $30.00 K: 25,000 pellets, $67.00

Yaya - Organic (58 days) F-1 hybrid. Nantes type. Tom Vigue says "unbeatable as a summer carrot." Not yet a grandmother in the carrot world, relatively new Yaya is in the same quality class with Mokum and Nelson, a standout three straight years in our trials. In his stale-bed method carrot intensification project in Monroe, ME, grower Mark Fulford achieved a yield of 254 lb, with more than 80% #1s, from a 150 sq ft 4-row carrot bed using Yaya. That averages out to 73,000 lb/acre, more than double the average carrot yield according to the USDA. Averaging 6", Yaya is slightly shorter-rooted than Nantes Fancy but more flavorful. Strong tops, good for bunching. Crisp clean sweet carrot flavor. Can be used for baby or full-sized carrots.

Yaya - Organic Unpelleted ④

2092 A: 1g, $3.10 B: 3g, $8.00 C: 6g, $12.00
D: 24g, $33.00 E: 120g, $145.00

Yaya - Organic Pelleted ④

2093 A: 100 pellets, $3.20 B: 250 pellets, $4.60
C: 1,000 pellets, $8.50 D: 5,000 pellets, $19.00
E: 10,000 pellets, $30.00 K: 25,000 pellets, $67.00

Scarlet Nantes (68 days) Open-pollinated. This old-time favorite Nantes variety with bright orange roots averaging 6–7" proves that good quality is not always expensive. Sweet with a small dark core. Very good for storage, too. Received a high overall score in the 2005 Oregon State University trials. Has been our best-selling carrot in recent years. ②

2042 A: 1/8oz, $1.90 B: 1/2oz, $4.00 C: 1oz, $6.00
D: 4oz, $10.00 E: 1#, $24.00 K: 5#, $112.00

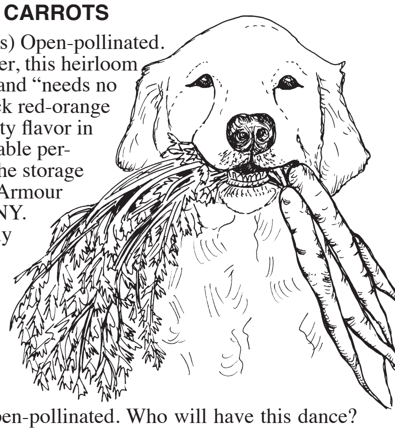
Nantes Fancy - Organic (68 days) Open-pollinated. Although other strains claim the name, they fall short, not deserving the fame of this classy Nantes type that we've kept going since Daehnfeldt got gobbled up by Syngenta. Fancy grows uniform cylindrical 7" roots with unusually good interior color, crisp texture and fine flavor. Holds well and is an excellent keeper, too. Outstanding quality for an OP carrot. A 50 lb bag of seed, assuming an average germination of 80%, has the potential to produce more than eleven million carrots! ①

2051 A: 1g, $2.40 B: 3g, $4.80
C: 6g, $8.40 D: 24g, $25.00
E: 120g, $80.00

Optimal Germination

Sowing seeds at sub-optimal temperatures is the most common cause of failure. We try to provide germination temps for each kind of vegetable. You could also consult *Knott's Handbook for Vegetable Growers* and *The New Seed-Starters Handbook* by Nancy Bubel for optimal germination temps.

more MAIN SEASON CARROTS



Red Cored Chantenay (70 days) Open-pollinated. According to William Woys Weaver, this heirloom originated in France around 1879 and "needs no improvement." Produces 5–7" thick red-orange roots that have had excellent carroty flavor in our September taste tests. Dependable performer does well in heavy soils. The storage carrot of choice for Jay and Polly Armour of Four Winds Farm in Gardiner, NY. Devoted customers at their monthly winter markets esteem its taste. ②

2058 *A: 1/8oz, $2.00*
B: 1/2oz, $5.00
C: 1oz, $7.00
D: 4oz, $11.00
E: 1#, $24.00
K: 5#, $115.00

Rumba - Organic (72 days) Open-pollinated. Who will have this dance? Line-stocker extraordinaire Gary Athenian will. He calls Rumba "the best carrot I've ever grown." When he brought it to Nash's Organic Produce in Sequim, WA, they admired its crisp texture and adopted it as their favorite as well, no small distinction as they breed carrots, their most important crop. Last offered by Johnny's in 2005, Rumba has since been hard to find. "Thank you so much for keeping the Rumba carrot alive!" writes Hilary Green of McKenzie Bridge, OR. A straight tapered 6–7" Nantes type that matures slowly and resists oversizing, it is great for fall harvest and winter storage. Its aromatic strong carrot flavor is admittedly not for everyone. Though Roberta also likes it, Gene and CR demur. But then again, not everyone can rumba. ①

2060 *A: 1g, $2.80* *B: 3g, $6.00* *C: 6g, $9.00*
D: 24g, $18.00 *E: 120g, $80.00*

Naval - Organic (72 days) F-1 hybrid. Named for the town of Naval (pronounced nah-vahl) in the breathtaking Huesca province of Aragon, Spain. Our enduring search for a Bolero-but-better fall carrot has finally lead Fedco to the deep-orange prize. Naval never blinked in multiple year stare-downs with Bolero, tasting better both fresh out of the field and after long storage. It sports a refined slightly more slender and tapered Continental Nantes form at 1" thick and 7–8" long, deep orange inside and out, and with healthy tall easily bunch-able tops. Delicious sweet full carrot flavor is paired with winning crunch: we had to hold ourselves back from eating all the samples intended for long-keeping comparison! Intermediate resistance to ALTS, BR, TLS, PM, LR. ④ **NEW!**

2062 *A: 1g, $5.00* *B: 3g, $12.00* *C: 6g, $19.00*
D: 24g, $60.00 *E: 120g, $250.00*

Newhall (74 days) F-1 hybrid. In our spring 2019 storage-carrot tasting, we were hoping to simply confirm newcomer Naval's refined dominance over well-known Bolero. Then out popped uniform thick deep orange 9" Newhalls from their bin, looking as perfect as the fall day when we stowed them away. With eyebrows raised in wonder after crisp sweet juicy sampling, we realized we now had two candidates who easily danced Bolero right off the table. Newhall is a bulky continental Nantes-type like Bolero, but with much better long-keeping ability and flavor. The impressive cylindrical crack-resistant roots with a slight taper are matched by strong healthy tall tops. Intermediate resistance to ALTS, BR, TLS, PM, LR. ④ **NEW!**

2070 *A: 1g, $3.90* *B: 3g, $9.00* *C: 6g, $15.00*
D: 24g, $45.00 *E: 120g, $200.00*

Shin Kuroda 5" (75 days) Open-pollinated. Over the years we've enjoyed several strains of the stump-rooted Japanese-type carrots that are so popular in Asian markets. *Shin* means 'new' in Japanese. Tender sweet Shin Kuroda scored high in our October taste test, and also impressed us with its bright orange color. These Kurodas, developed from the old Chantenay type, do well in a wide range of soil and weather conditions and store well. ②

2073 *A: 1/8oz, $2.00* *B: 1/2oz, $4.20* *C: 1oz, $6.00*
D: 4oz, $12.00 *E: 1#, $26.00* *K: 5#, $120.00*

Danvers - Organic (75 days) Open-pollinated. The original Danvers Half-Long was developed by market gardeners in Massachusetts in 1871. This modern improvement features 7" conical orange roots that taper to a point. Easier to grow in heavy soils than the longer more refined types. Broader at the top and more fibrous than the Nantes varieties. Outstanding for cooking and winter storage. ③

2076 *A: 1/8oz, $2.40* *B: 1/2oz, $6.20*
C: 1oz, $10.00 *D: 4oz, $20.00*
E: 1#, $50.00 *K: 5#, $230.00*

Scarlet Keeper - Organic (85 days) Open-pollinated. A stalwart storage carrot whose flavor improves with time. These 7–9" heavy cylindrical roots with broad red shoulders, large deep orange cores and blunt tips store well into early summer. Good for fresh eating and juicing, too. They're so big that only a few make plenty of sweet carroty juice with a flavor profile similar to our warehouse favorite, **2086** Mokum (p. 17). ①

2079 *A: 1g, $2.60* *B: 3g, $6.00* *C: 6g, $10.00*
D: 24g, $24.00 *E: 120g, $60.00*

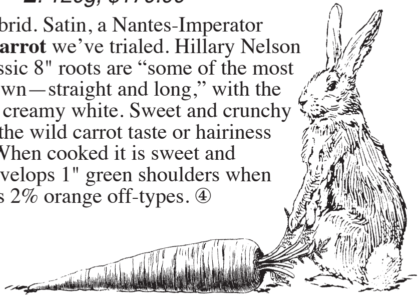
CARROTS of Other Colors

Over the Rainbow Mix (48-75 days) If there's a better carrot mix than this one, it must be somewhere over the rainbow, way up high. We took a good formula called Rainbow Mix, especially strong in the lighter shades of yellow and orange, and boosted it with our own choice of dark orange, purple and red varieties. In doing so, we sacrificed some of the uniformity our European supplier maintains, so not all the roots are perfectly slender and tapered, nor will they all mature at the same time. But oh the colors! ④

2099 *A: 1g, $3.20* *B: 3g, $8.00* *C: 6g, $13.00*
D: 24g, $42.00 *E: 120g, $184.00*

Purple Haze (70 days) F-1 hybrid. Again 2006 AAS winner Purple Haze outperformed Purple Dragon in our trial. Enhanced by a texture almost as refined as the best orange carrots, it has none of Dragon's harshness. **Purple with orange stretch marks and a vivid orange core**, Haze will really draw crowds to your stand. Its raw flavor, rated average, improves with cooking, though color fades. The 7" tapered roots store fairly well. This first purple Imperator-type carrot may make you want to kiss the sky! Contains 0.5% orange off-types. ④

2096 *A: 1g, $3.70* *B: 3g, $8.50* *C: 6g, $13.00*
D: 24g, $40.00 *E: 120g, $170.00*



White Satin (70 days) F-1 hybrid. Satin, a Nantes-Imperator cross, is by far the best **white carrot** we've trialed. Hillary Nelson of Canterbury, NH, says its classic 8" roots are "some of the most perfect looking carrots I've grown—straight and long," with the ideal carrot shape in a pleasing creamy white. Sweet and crunchy when eaten raw, it has none of the wild carrot taste or hairiness typical of other white carrots. When cooked it is sweet and mild with a smooth texture. Develops 1" green shoulders when mature. Medium core. Contains 2% orange off-types. ④

2097 *A: 1g, $3.60*
B: 3g, $8.40
C: 6g, $13.00
D: 24g, $40.00
E: 120g, $180.00

Yellowstone (72 days) Open-pollinated. Yellowstone boasts a crisp clean flavor that has shown up well in our recent taste tests. Big-shouldered **light yellow roots with large greenish-yellow cores** grow up to 8" long, averaging 7". Productive in a wide variety of soils. Research shows that yellow carrots contain xanthophylls, pigments similar to beta carotene, that help develop healthy eyes and may help prevent lung and other cancers. ④

2063 *A: 1g, $2.90* *B: 3g, $6.00* *C: 6g, $10.00*
D: 24g, $24.00 *E: 120g, $96.00*

Atomic Red - Organic (74 days) *Crop blew up. Not available in 2020.*

Jaune du Doubs (78 days) Open-pollinated. I like this 19th-c. French heirloom best of all the **yellow carrots**. Holli Cederholm, another admirer, called it "a mainstay in [her] open-pollinated rainbow carrot bunches," and reported it performed beautifully on her heavy and rocky new ground—with fewer culls than **2076** Danvers. Not everyone agrees. Some are put off by its sometimes rough unrefined appearance and variable taste and texture. We advise working your seed bed well before sowing to avoid forked or shallow roots. The plants have the kind of dense rampant wildness that has been tamed out of the newer hybrids, so thin them more rigorously than other varieties. Well-grown they produce smooth conical 5–8" yellow roots, showing slight green shoulders and good core color. Better flavor cooked than raw and retains good color. Cederholm reported the roots stayed crisp and crunchy in storage for tri-colored carrot slaw all winter. ②

2078 *A: 1/8oz, $2.60* *B: 1/2oz, $8.00* *C: 1oz, $10.00*
D: 4oz, $32.00 *E: 1#, $120.00*

Some Basic Definitions

- **Open-pollinated** varieties produce seed true to type if they are allowed to cross-pollinate only with other plants of the same variety. If they cross with other varieties of the same species, their seed will not be true.
- **Hybrid** varieties are those produced from the crossing of two different inbred lines. Seed saved from hybrid varieties will not breed true in the next generation.
- Amongst open-pollinated plants, **self-pollinated** (selfers) usually reproduce by using their own pollen. **Crossers** usually reproduce through the transfer of pollen from one plant to a different plant of the same species.
- Botanical nomenclature goes from the general to the specific. Plants are classified into kinds by **genus**, **species** and **variety**. In *Cucurbita pepo* Sweet Dumpling, *Cucurbita* is the genus, *pepo* is the species and Sweet Dumpling is the variety.

CELERIAC & CELERY

Apium spp.

~2000-3000 seeds/g. All open-pollinated.

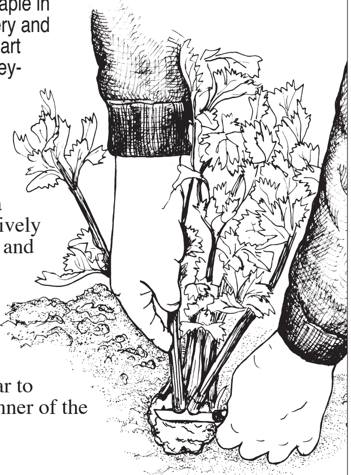
Culture: Tender, must be started indoors in March, 10–12 weeks before setting out. Young seedlings grow slowly, requiring rich moist soil to survive. Regular rainfall or irrigation is necessary for good growth, flavor and yields. Celery withstands light fall frosts but gets kayoed by serious cold.

Minimum germination temperature 40˚, optimal range 59–70, needs fluctuating temperatures.

Days to maturity are from date of transplanting, not seeding.

CELERIAC *A. g.* var. *rapaceum*

The frog prince of root vegetables, celeriac is a staple in central and eastern Europe. Also called knob celery and celery root. Easier to grow than celery; an early start indoors is essential for good yields. Its nutty parsley-celery flavor is improved by light fall frosts. Can be stored up to 6 months in moist sand or damp leaves in the root cellar. Great raw for winter slaws and salads, it may be boiled, mashed or braised to enhance meat, fish and poultry.



Brilliant - Organic (100 days) Brilliant is a classy early celeriac, high yielding with relatively smooth roots, clean white internal coloration and superb eating quality. ①

3646 ***A***: *0.2g, $3.00*
B: *0.4g, $5.00*
C: *1g, $10.00*
D: *4g, $27.00*

Monarch - Organic (100 days) Very similar to Brilliant but with a more flattened shape. Winner of the RHS Award of Garden Merit. **NEW!** ①

3648 ***A***: *0.1g, $3.60*
B: *0.2g, $6.50*
C: *0.4g, $9.30*
D: *2g, $36.00*
E: *10g, $120.00*

CELERY *A. graveolens*

Afina Cutting Celery (60 days) Sturdy dark green foliage has rich aroma and taste, regenerates quickly after cutting. Imparts the same flavor to stews and soups as conventional celery. Although its culture is the same, it is much hardier and easier to grow. Both its thin hollow stems and its leaves can be used fresh or dried. Grows up to 30". ④

3616 ***A***: *0.2g, $2.00* ***B***: *0.4g, $3.00* ***C***: *1g, $5.00*
D: *4g, $7.00* ***E***: *28g, $20.00*

Par-Cel Cutting Celery - Organic (72 days) *Not available in 2020.* Biennial seed crop will return next year.

Ventura - Organic/BD (80 days) Ventura takes the difficulty out of growing celery. Glossy bright green plants 28–30" tall have 12" stalks and well-developed hearts. Widely adapted. "Vigorous growth, good taste, very little punkiness in the center," praises Nicholas Panjiris. Develops beautiful thick crisp stalks with rich never-harsh flavor even in less-than-ideal conditions. Easy to grow as long as young plants receive adequate moisture, a necessity for steady growth. Irrigate if necessary. Some tolerance to fusarium, but susceptible to boron deficiency. Certified-biodynamic seed. ①

3624 ***A***: *0.1g, $3.10* ***B***: *0.2g, $5.00* ***C***: *0.4g, $8.00*
D: *2g, $20.00* ***E***: *10g, $90.00*

Redventure - Organic (84 days) Inspired cross of Giant Red Celery and Ventura by Frank Morton in the early 1990s, now a stabilized cultivar. This marriage of opposites brings out the best of both partners and hides the flaws. Wanting to offer red celery, we trialed heirloom Giant Red but found it tough, stringy and too strong for modern palates. However, when combined with Ventura, the harshness and textural flaws disappeared into a delicious chewy stem with plenty of interior red color. Not as tender as Ventura, but with an enhanced flavor that will really enliven soups, salads and casseroles. **OSSI** Ω ①

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3630 ***A***: *0.2g, $2.60* ***B***: *0.4g, $4.00* ***C***: *1g, $6.00*
D: *4g, $10.00* ***E***: *28g, $50.00*

Tango - Organic (90 days) The dance originated in South America but the celery seed is from Bejo in Holland. Adam Tomash and June Zellers, who grew astounding celery, selected Tango as the star of one trial. Impressed with the variety's compact architecture and absence of punky centers, they grew massive dense plants even in close spacing. They said Tango is almost as nice as Ventura with not quite as good disease resistance. Once you taste its smooth tender sweet nearly stringless stalks, you're going to want this dance. Note: Under conditions of fast growth, high temperatures and moisture it may exhibit a harmless condition that mimics bacterial wilt. ④

3634 ***A***: *0.1g, $3.70* ***B***: *0.2g, $6.30* ***C***: *0.4g, $9.50*
D: *2g, $38.00*

Chard: see Greens, pg 29.
Chicory: see Greens, pg 29.
Collards: see Kale & Collards, pg 36.

See page 25 for a remembrance of the late Adam Tomash.

Looking Ahead with 2020 Vision: Rowan White

Rowen White is a Seed Keeper, storyteller and activist for seed sovereignty. A member of the Mohawk Nation who lives nestled in the Sierra foothills of Northern California, Rowen is a busy woman, a bit like a pollinator bee, in her role as educational director for two organizations: the Indigenous Seed Keepers Network and Sierra Seeds. Sierra Seeds has a big mission: teaching seed sovereignty and food sovereignty within the groundwork of practical farm skills to develop a seed literacy that includes a cultural and restorative perspective.

Recently, when Nikos spoke to Rowen about the future of agriculture, she dove right in, describing a recent gathering where people, seated in a circle, reflected on how far they've come while visioning what's ahead on the road they walk—with food and seed present in the circle. "All the work we do is on behalf of them," she said. That's key. Small agriculture may have sustainable techniques but it's not enough.

"We've forgotten the heart," she said. "Restoring our relations to food and land, that engages our heart. The dominant culture has abdicated a more reciprocal relationship to one of capitalistic enterprise, which makes us deeply conditioned to see life as dead cogs instead of living, breathing relations. But when I have the courage to speak my story, I sense a longing, an awakening in so many people…it inspires others to do the next heart work…find original agreements, original understandings, as part of cosmogenealogy." Her elucidation of that word was simple: "We are all lineal descendants of food in some place and time. For a Mohawk the food we eat is conveyed from the very body of our Original Woman, given to us as descendants of Her…When we acknowledge that we're relatives, it changes how we engage with them. This is such a common theme… it's at the foundation of any culture.

"How are we restoring, re-storying, these cultural connections?…There is a personal responsibility to reclaim that agency. For even if it's been severed (a bit like a phantom limb) it's still there and will fill in the gaps. The understanding will return when we do the work."

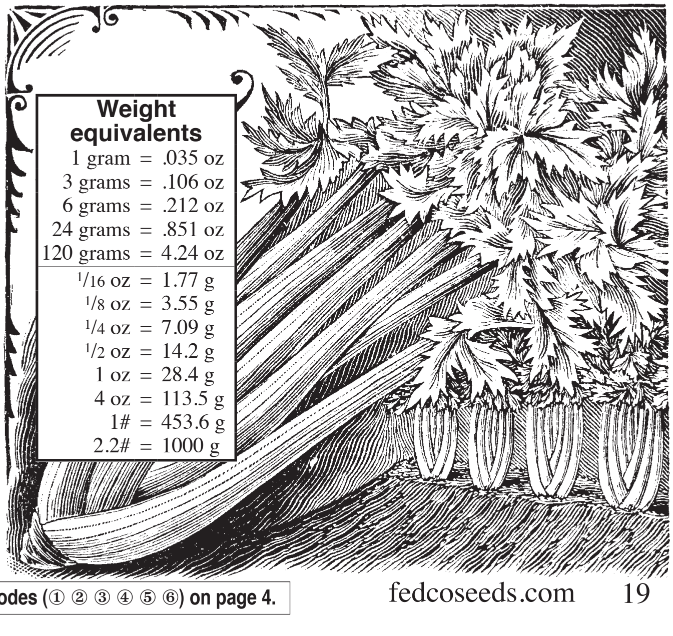
What is that work? "We need to work cross-culturally to heal old wounds, to invite in hard and difficult conversations and to make reparations in order to see the new vision." And where does one start? "Start with your own ancestry. We hold these memories in our blood and bone, in relationship. It's a multi-sensory awakening of innate wisdom. Find one variety [of food] you feel connected with in a deep way—not just a food you like. Or find one that your land knows. Ally with indigenous peoples where you live; do the work of reconciliation. Those foods go inside us, to hidden places in parts of our body, and awaken our hearts and instinctual knowing. It's a long-game approach: to love food as your mother. It changes everything.

"Seed the next vision: a food system that is adaptive and resilient. That can't be achieved until people engage to defend what they love. And that part of the movement needs to hold an equal place, have equal weight with the others. We need more indigenous leadership across the ground. And more food justice work and intact food culture. The larger food system has a lot to learn to bring some sanity back in. The original organic has been overlaid with commodified organic. The original acknowledged love for the seed but has been silenced, stomped down, moved to the side. Being allied in solidarity, interculturally, might create a food system aligned with these values: reciprocity, reverence, love and compassion.

"A series of small changes bring about fundamental connection which, multiplied over time, has far greater potential than people marching in the street. Meaningful small acts with intention. Show up and do the work. Every day. Stop abdicating responsibility to someone else.

"Food grows us into humans."

Rowen is writing a forthcoming book. Look for it in the Books section of our catalog in coming years.



Weight equivalents

1 gram = .035 oz
3 grams = .106 oz
6 grams = .212 oz
24 grams = .851 oz
120 grams = 4.24 oz
1/16 oz = 1.77 g
1/8 oz = 3.55 g
1/4 oz = 7.09 g
1/2 oz = 14.2 g
1 oz = 28.4 g
4 oz = 113.5 g
1# = 453.6 g
2.2# = 1000 g

CORN

Zea mays

~100-160 seeds/oz. Seeds per packet vary, open-pollinated selections average 100 seeds/oz, normal sugary varieties 140 seeds/oz, and SE cultivars 150-160 seeds/oz. We've never before offered a supersweet, but Nirvana made the grade. See p. 22.

Culture: Untreated sweet corn seed will not germinate in cold wet soil. Be patient and wait till soil warms to at least 60° before sowing, or start seedlings indoors and transplant at 3–6" before taproots take off. Tender, will not survive frost. Heavy nitrogen requirements. Plant seeds 3" apart in rows 3' apart. Plant in blocks of at least 4 rows to ensure adequate pollination, essential for good tip fill. Thin to 1' apart. When corn is knee-high, sidedress with **8213-6** azomite (p. 126) or **8260** alfalfa meal (p. 128) to stimulate growth. If you lack sufficient space for enough plants for good pollination, try hand-pollinating by cutting off the tassels and shaking their pollen onto the silks.

Sweet corn is ready 18–24 days after the first silks show, the exact time dependent on the weather in the interim. Press ears 2" from the tips to assess kernel fullness. Harvest when the kernels are plump, soft, tender and filled with a milky juice. Most sugary enhanced varieties have an optimal picking window of 5–7 days, but some standard selections hold only 1–2 days.

Minimum soil temperature 50°, optimal temperature range 60–95°.

Diseases:

MDMV	Maize Dwarf Mosaic Virus	SCLB	Southern Corn Leaf Blight
NCLB	Northern Leaf Blight	ST	Stewart's Wilt
R	Rust		

Pests: See the sidebar below. A high fence or good dog are best critter deterrents.

Days to maturity are from direct-seeding; for transplants, subtract 20 days.

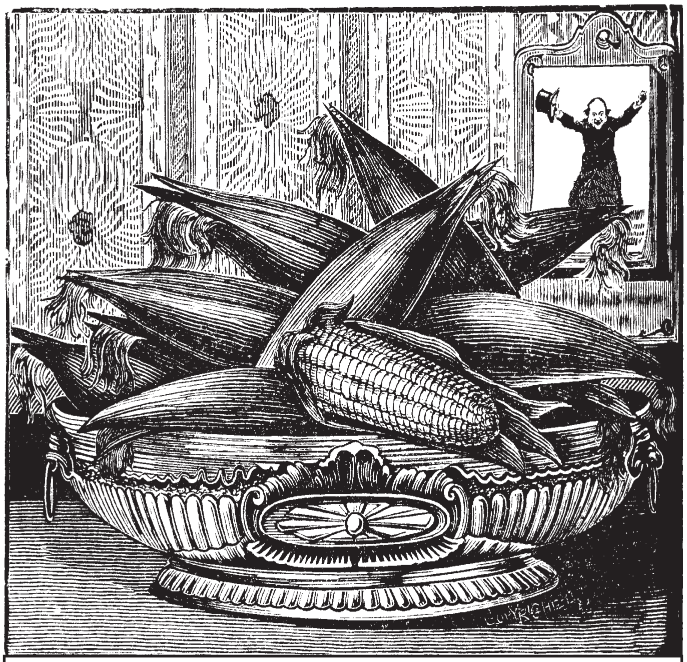
Corn Pest Control

Pest: Corn Earworm

- Cultural controls: use resistant varieties with tight husks such as **541** Bodacious RM or **658** Silver Queen, choose short-season varieties, release trichogramma wasps. (Beneficial insects are available at insectary.com or 800-477-3715.)
- Material controls: **8753-6** Bt Kurstaki, **8762** Spinosad (both p. 139)

Pest: European Corn Borer (ECB) and fall armyworm

- Cultural controls: mow and disk old corn stalks into the soil, release trichogramma wasps (found to give better control than insecticides in research by Cornell's IPM program on five organic farms) for ECB; none known for fall armyworm.
- Material controls: **8753-6** Bt Kurstaki, **8762** Spinosad (both p. 139)



We Test Sweet Corn, Beet, and Chard Seed for Transgenic Contamination

To help ensure the purity of our seed, we have for the past seventeen years employed industry leader Foodchain ID (formerly Genetic ID) to test samples of our sweet corn lots for the presence of transgenic contamination. Because of the risks posed by production of genetically engineered Roundup Ready beets, we have added beet and chard varieties to our GE testing program.

We remove any lots that test positive for transgenic contamination.

A negative test result does not guarantee genetic purity but improves the chances seed is uncontaminated. The tests are expensive, but in a time of genetic roulette they are necessary, though not sufficient. Only if the seed trade takes an adamant position that it will not tolerate GE contamination in products can we maintain any integrity in our seed supply.

YELLOW SWEET CORN

Cafe (68 days) **Synergistic F-1 hybrid.** For many of us, the first and most important stop of the day is our local coffee purveyor. Super early-bird Cafe is truly the first stop in the corn patch, and this ain't no bland swill, folks! In our 2016 corn trials, Cafe sold us on its stellar brew of (kernel) depth, nuanced texture and honest sweetness. Cafe's 14–16 bright pure yellow rows fill to the tip on a hefty 8" ear. While most growers don't expect much from early types, Cafe brings midseason size, flavor and quality right out of the gate, all combined with superb cold-soil performance. Great coffee is a life-giving reward for getting out of bed each morning, and excellent early corn keeps gardeners charging through those long summer days. ②

506 ***A**: 1oz, $3.60* ***B**: 8oz, $16.00* ***C**: 1#, $27.00*
***D**: 5#, $125.00* ***E**: 10#, $235.00*

Ashworth - Organic (72 days) **Open-pollinated.** A composite of early varieties originally developed by the late Fred Ashworth of St. Lawrence Nurseries and marketed by Johnny's Selected Seeds starting in 1978. According to legend, Ashworth originally named his variety "Rat Selected" in honor of the rodents who broke into his seed storage room and alerted him to certain kernels that they preferred. Its short stalks have 6–7" yellow ears with good flavor. Be sure to harvest it at peak milk stage—like much open-pollinated corn it does not hold quality for long in the field. Germinates well in cool soil. ①

516 ***A**: 1oz, $2.90* ***B**: 8oz, $14.00* ***C**: 1#, $22.00*
***D**: 5#, $98.00* ***E**: 10#, $180.00*

Sugar Buns (74 days) **Homozygous sugary enhanced F-1 hybrid** from Crookham with sublime tenderness. About as sweet as our palates like, but not cloying like the supersweets. Sugar Buns does not have as good cold-soil emergence as other early corns. Tolerates NCLB, ST. ②

524 ***A**: 1oz, $2.70* ***B**: 8oz, $11.00*

Bodacious RM (77 days) **Homozygous sugary enhanced F-1 hybrid.** A bold flavor for a bold name, Crookham's Bodacious RM dependably produces outstanding 8" ears with exceptionally sweet corny tender yellow kernels. Avowed corn fanatic Eric Sideman's choice for midseason delight. Same as the original Bodacious but with enhanced disease resistance. Some report it to be a fussy germinator. Resistant to MDMV and R, tolerant to ST. ②

541 ***A**: 1oz, $3.00* ***B**: 8oz, $11.00* ***C**: 1#, $20.00*
***D**: 5#, $90.00* ***E**: 10#, $170.00*

Top Hat - Organic (80 days) **Open-pollinated** (F-6 selection from Tuxedo F-1) Oregon farmer, breeder and seed grower Jonathan Spero spent six years diligently selecting OP sweet corn lines for depth of flavor, sweetness and tenderness to give the hybrids a run for their money. Tuxedo was a yellow sugary-enhanced F-1 hybrid that we regarded highly and offered from 1995-2012 before it disappeared from production. Top Hat, while variable in ear length (6–7$^{1}/_{2}$") and width, is uniform where it counts most: good kernel depth, delicate texture, and full corny flavor balanced by just enough sweetness. It is tender enough to make good raw eating as well as to enhance salsas, chowders etc. Boasts slender delicate handles that make it easy to pick and husk, good tip fill, relatively long milk stage for an OP, and holding ability off the stalk. An Organic Farming Research Foundation (OFRF) grant stimulated this new breakthrough in OP breeding. Our hats are off to Spero as we see the fruits of so many long efforts in organic breeding beginning to ripen. (Spero also bred Solstice broccoli.) **Breeder Royalties. OSSI** Ω ①

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544 ***A**: 1oz, $4.00* ***B**: 8oz, $18.00* ***C**: 1#, $32.00*
***D**: 5#, $150.00* ***E**: 10#, $280.00*

Honey Select (80 days) **TripleSweet sugary enhanced F-1 hybrid.** For those who like firm flavorful crunchy kernels, here is one honey of a corn that pops in your mouth with a distinctive sweetness that mixes well with its flavor. During the taste test, evaluator Heron Breen said it took all his will power not to gobble every ear from Donna Dyrek's table. He said that it tasted "like the best corn of my childhood." Honey Select produces refined 8" ears with 18–20 rows of subtly colored golden-yellow kernels. Contains 25% supersweet kernels on each ear but need not be isolated from other varieties to retain optimal flavor. Market growers will like its extended harvest window. ⑥

547 ***A**: 1oz, $2.80* ***B**: 8oz, $12.00* ***C**: 1#, $21.00*
***D**: 5#, $100.00* ***E**: 10#, $190.00*

Incredible RM (85 days) **Homozygous sugary enhanced F-1 hybrid.** Crookham's superior late-midseason gourmet selection was a full tassel-length ahead of the competition at our trial, where its handsome 8" tip-filled yellow ears were incredibly scrumptious. Incredible is not merely sweet, it really delivers a deep corn taste. Good husk protection and tolerance to ST, enhanced resistance to MDMV, SCLB and R. Poor cold-soil emergence. ②

561 ***A**: 1oz, $3.00* ***B**: 8oz, $12.00* ***C**: 1#, $20.00*
***D**: 5#, $96.00* ***E**: 10#, $180.00*

Kandy Korn (89 days) **F-1 sugary enhanced hybrid.** Attractive deep purple husks and excellent holding quality make this a real winner at roadside stands. One of the first sugary enhanced varieties, Kandy Korn has stood the test of time and enjoys well-deserved popularity. Tolerant to ST, R. ⑥

564 ***A**: 1oz, $3.00* ***B**: 8oz, $11.00* ***C**: 1#, $18.00*
***D**: 5#, $80.00* ***E**: 10#, $152.00*

BICOLOR SWEET CORN

Latte (68 days) **Synergistic F-1 hybrid.** We know what you're thinking: How could we replace Luscious with a corn named after a bourgie coffee drink? But after our taste test, even staff skeptics were won over: "WOW, Corn plus Sugar!" "Beautiful bicolor, best flavor!" and "Full ears, full kernels!" Every tip was filled out on these super-early extra-fancy 8" ears with 14 rows. Such high quality and great taste is normally reserved for a later-maturity slot, but why not start the first corn picking with the good stuff? While it often bears only a single ear per stalk, Latte is easy to grow and exceeds its predecessor in cold-soil emergence. So, have a Latte and breathe a sigh of sweet (corn) relief. We suggest staggered plantings for successive harvests. Intermediate resistance to R and ST. ②

572 ***A**: 1oz, $3.60* ***B**: 8oz, $17.00* ***C**: 1#, $30.00*
***D**: 5#, $140.00* ***E**: 10#, $270.00*

Espresso (70 days) **Synergistic F-1 hybrid.** Quicker than quicksilver, fleeter than Fleet, springier than Spring Treat, Espresso bursts out of the gate and flashes to the finish. Has become Eric Sideman's new favorite early sweet corn; he says it has better flavor than Spring Treat. He seeds Espresso in the last week of April and transplants to the garden the first week of May using row covers for added warmth and frost protection. Direct seeding without row covers, trialer Donna Dyrek in 2012 in Zone 4 Hartland, ME, clay loam, enjoyed her first ears on Aug. 18. Though not as long as the midseason corns, these 6" ears retained the good balance between sweet and corny that will satisfy your early corn craving. Tolerates R, ST. ②

574 ***A**: 1oz, $3.50* ***B**: 8oz, $14.50*
***C**: 1#, $27.00* ***D**: 5#, $125.00*
***E**: 10#, $240.00*

Ambrosia (75 days) **Homozygous sugary enhanced F-1 hybrid.** Ah! Those heavenly moments of high summer! Out of the pot come steaming ears of bicolor bliss covered with dewdrops of condensation. Into my mouth where the tender corny kernels mix their sweetness into a total sensation of ambrosial delight. Our corn tasters, for all their enjoyment of the process, are a contrary lot, so when they come to consensus, as they did on Ambrosia, we knew we'd found something good. Ambrosia is perfect for a wide range of markets, from fresh home-garden use to long-distance shipping. The 6$^{1}/_{2}$' plants show good early vigor. In stressful conditions the tips don't always fill. Tolerates ST. ②

582 ***A**: 1oz, $2.60* ***B**: 8oz, $12.00*
***C**: 1#, $20.50* ***D**: 5#, $98.00*
***E**: 10#, $190.00*

Cappuccino (78 days) **Synergistic F-1 hybrid.** Farmer Hannah Hamilton asks "Who is this barista-gone-corn-breeder?" The answer is Seneca Vegetable Research of Hall, NY, breeders of eastern-adapted cultivars. However, we can't figure out the Starhusks-themed variety names either (Espresso, Cafe, Latte). With its strong flavor and performance, Cappuccino moves into the slot abandoned by Lancelot. Large full sweet tender creamy kernels announce peak corn season has arrived. The well-filled 8" blunt ears appear overloaded with 14–16 rows. In the 2016 drought, the sturdy thick stalks proved stress tolerant, allowing extended picking and second ear production. Rest assured we aren't gentrifying the corn patch—we're just looking for the tastiest ways for you to spend your Cornbucks. Intermediate resistance to ST, R and NCLB. ②

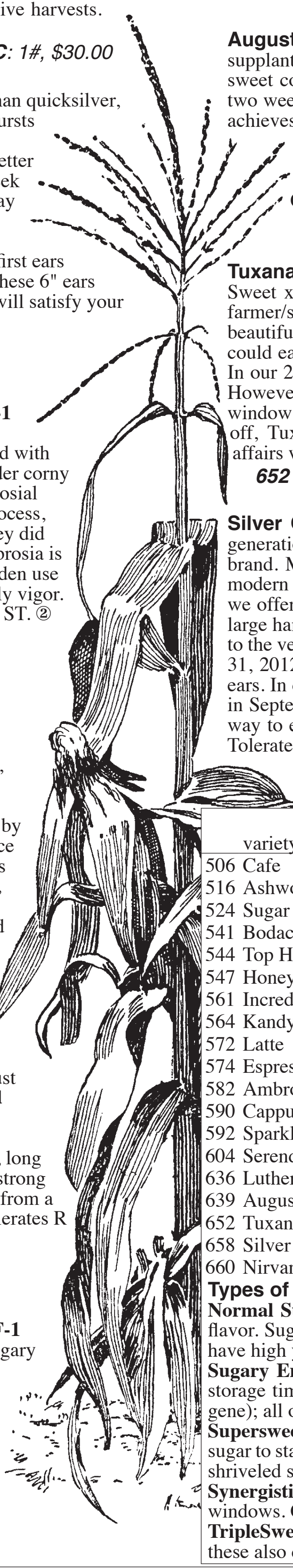
590 ***A**: 1oz, $3.50* ***B**: 8oz, $14.50*
***C**: 1#, $26.00* ***D**: 5#, $130.00*
***E**: 10#, $245.00*

Sparkler (78 days) Put a sparkle on your face next August with this handsome high-yielding **synergistic F-1 hybrid** bicolor corn. The long fat pointy ears, up to 9" with up to 18 rows, speak loudly of abundance and satisfy the most discriminating of palates. Plenty of good husk protection, long flag leaves and tillers for market growers who demand a strong easy-to-harvest plant. Ripened for Donna Aug. 23, 2010, from a June 3 sowing, two days ahead of her **541** Bodacious. Tolerates R and ST. ②

592 ***A**: 1oz, $3.50* ***B**: 8oz, $14.50*
***C**: 1#, $26.00* ***D**: 5#, $120.00*
***E**: 10#, $230.00*

Serendipity (82 days) **TripleSweet sugary enhanced F-1 hybrid.** Full-bodied flavor with good balance between sugary and traditional corn taste. Serendipity has the soft-crisp creamy texture and heavenly bouquet to savor again and again. Along with **547** Honey Select, one of Heron's favorites in the 2011 trials. Contains 25% supersweet kernels on each ear but need not be isolated from other varieties to retain optimal flavor. Market growers will like its extended harvest window. Features 7–8" bicolor ears with good tip fill. Resistant to SCLB. ⑥

604 ***A**: 1oz, $2.60*
***B**: 8oz, $12.00*
***C**: 1#, $20.00*



WHITE SWEET CORN

Luther Hill - Organic (82 days) **Open-pollinated.** This rarely offered heirloom developed by Luther Hill of Andover Township, NJ, in 1902, is one of the parents of the venerable Silver Queen. The most popular sweet corn in parts of New Jersey for more than 50 years. Sweetest OP corn I've ever tasted, Luther makes multiple 3–6" miniature ears on modest 4' stalks. Because the suckers often yield good ears, each plant, if spaced widely, can make up to four ears. A great way to introduce yourself to sweet corn the way it was before the hybrids took over. ①

636 ***A**: 1oz, $2.80* ***B**: 8oz, $14.00* ***C**: 1#, $25.00*
***D**: 5#, $115.00* ***E**: 10#, $220.00*

Augusta (84 days) **Homozygous sugary enhanced F-1 hybrid.** Having supplanted even the venerable Silver Queen in our estimation, Augusta is one sweet corn variety we will not be without. Beginning Aug. 18, we enjoyed two weeks of delectable delirium with this empress of white sweet corn that achieves the pearly mean in good eating quality. Maturing before **658** Silver Queen, it bears perfect substantial 8–8$^{1}/_{2}$" cylindrical ears with dark green husks that sit low on 6$^{1}/_{2}$' stalks for easy harvest and almost always fill to the tips. "2–3 ears per stalk, sweet and juicy" says Ohio's Janine Welsby. ⑤

639 ***A**: 1oz, $2.90* ***B**: 8oz, $12.50*
***C**: 1#, $22.00* ***D**: 5#, $102.00*

Tuxana - Organic (86 days) **Open-pollinated.** (F-6 selection from Anasazi Sweet x Tuxedo) Twin variety to **544** Top Hat, also developed by Oregon farmer/seed grower/breeder Jonathan Spero out of Tuxedo. Admiring its beautiful bright white kernels in 14–16 rows and 9" ears with great tip fill, one could easily have mistaken it for a hybrid such as Augusta or Silver Queen. In our 2014 taste-off its tender mouthfuls burst with sweetness. However, as with all open-pollinated corns, its optimal picking window is narrow. As the harvest of midseason varieties tapers off, Tuxana begins. Late-summer corn feasts will be formal affairs with Tux required.**OSSI** Ω ①

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652 ***A**: 1oz, $4.40* ***B**: 8oz, $19.00* ***C**: 1#, $33.00*
***D**: 5#, $160.00* ***E**: 10#, $290.00*

Silver Queen (96 days) **F-1 hybrid.** Like Sugar & Gold to the previous generation, Silver Queen has become so classic as to constitute a generic brand. Most farmers claiming to offer it have long since switched to more modern hybrids. Because some still prefer to grow the real Queen, that's what we offer. Queen has long set the standard for late-maturing sweet corn with large handsome ears, replete with glossy white creamy sweet kernels that fill to the very tips. CR uses it as a succession to **639** Augusta. It came in on Aug. 31, 2012, and blessed his first week of September with its delicious lovely ears. In colder climates it sneaks in just ahead of those first killing frosts late in September. Other varieties may be sweeter, but we can't think of a better way to end the corn season. *Caution: said to germinate poorly in cold soil.* Tolerates NCLB, SCLB, ST. ⑥

658 ***A**: 1oz, $2.80* ***B**: 8oz, $10.00* ***C**: 1#, $19.00*
***D**: 5#, $90.00* ***E**: 10#, $170.00*

Sweet Corn at a Glance

	variety	days	color	**type** (see below)	height	ear length	# rows
506	Cafe	68	yellow	Synergistic	60-72"	8"	14-16
516	Ashworth OP	72	yellow	Normal Sugary	60"	6-7"	12
524	Sugar Buns	74	yellow	Sugary Enhanced	76"	6-7"	14
541	Bodacious RM	77	yellow	Sugary Enhanced	87"	8"	18
544	Top Hat OP	80	yellow	Sugary Enhanced*	60-72"	6-7.5"	12-14
547	Honey Select	80	yellow	Triplesweet	84"	8"	18-20
561	Incredible RM	85	yellow	Sugary Enhanced	90"	8"	18
564	Kandy Korn	89	yellow	Sugary Enhanced*	102"	8"	16
572	Latte	68	bicolor	Synergistic	48-72"	8"	14
574	Espresso	70	bicolor	Synergistic	72"	6"	12-16
582	Ambrosia	75	bicolor	Sugary Enhanced	78"	8"	16
590	Cappuccino	78	bicolor	Synergistic	72-84"	8"	14-16
592	Sparkler	78	bicolor	Synergistic	84"	8-9"	16-18
604	Serendipity	82	bicolor	Triplesweet	75"	7-8"	16-18
636	Luther Hill OP	82	white	Normal Sugary	48"	3-6"	12
639	Augusta	84	white	Sugary Enhanced	78"	8-9"	16-18
652	Tuxana OP	86	white	Sugary Enhanced*	108"	9"	14-16
658	Silver Queen	96	white	Normal Sugary	102"	8"	14-16
660	Nirvana	75	bicolor	Supersweet	83"	8"	16-18

Types of sweet corn:

Normal Sugary (su): standard varieties with traditional sweet corn texture & flavor. Sugar converts to starch quickly, so eat them within a few days. Tend to have high yields and germinate well in cool soils.

Sugary Enhanced (se): more sugar than **su**, tender kernals & slightly longer storage time. The * indicates heterozygous (only one parent contributes the **se** gene); all others are homozygous (both parents **se**).

Supersweet (sh2): 4 to 10 times the sugar content of **su** and **se**. Conversion of sugar to starch occurs at a much slower rate. Stays sweet long after harvest. Extra shriveled seed does not germinate well in cool soil.

Synergistic: more sugar than **se**. Very tender with long harvest and storage windows. Can be homozygous or heterozygous **se** with added **sh2** kernels.

TripleSweet® Sugary Enhanced: has homozygous **se** kernels, and 25% of these also contain the **sh2** trait.

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

SUPERSWEET CORN

For decades, Fedco has been a firm proponent of “eating quality” in sweet corn with flavor, texture and kernel depth as our in-house metrics. We’re a “corny” flavor bunch, dismissing sweetness as the sole measure of breeding progress. Until recently, we hadn’t encountered eating excellence in a Supersweet (sh2) variety. Breeders have now balanced the extra-sweetness with tenderness, creaminess and full flavor. With the sh2 gene, conversion of sugar to starch occurs at a much slower rate, so corn stays sweet long after harvest.

Culture: Supersweet types germinate poorly in cool soils. Wait until soil temps exceed 65˚ for direct seeding—mid-June in central Maine.

Supersweets require an average of 300' isolation from all other corn types. If planted closer, the kernels of other corns will become starchy and tough. If you don’t have space to isolate, choosing a pure Supersweet means foregoing other varieties.

Nirvana (75 days) **Supersweet F-1 hybrid.** Bicolor, 8" ears, 16-18 rows. We’ve been saying “Nevermind” to Supersweet corn for ages: the early years of sh2 breeding never came close to capturing the flavor and tenderness we demand. But a select few progressive Supersweets brought balanced excellence to our attention in our central Maine trials. At your first bite into the crisp but tender kernels, Nirvana’s wash of full corn flavor hits and persists. The bold sh2 sweetness and perfect flavor swirl, neither submerging nor melding. “Come as You Are” to this Supersweet experience, with all your judgements and preconceptions. Holding quality in the field and after harvest is superb. Never direct seed a Supersweet until soil temps exceed 65˚. ***Warning:*** *Isolate from all other corn types by 300 feet*. ② **NEW!**

660 ***A***: *1oz, $4.00*
B: *8oz, $22.00*
C: *1#, $37.00*
D: *5#, $170.00*
E: *10#, $320.00*

POPCORN

Seed counts vary widely among varieties.

Robust 98114W White (98 days) **F-1 hybrid.** Taller, a bit later, higher yielding with larger kernels and ears, and greater ease of popping than the old Robust 21-82W, this midseason white hulless popcorn has great eating quality—crisp and tender, light and flaky. The 6' plants have the stalk strength to survive September storms intact. “Nice long thin ears,” says market grower Jason Kafka. ②

671 ***A***: *1oz, $3.00* ***B***: *8oz, $12.00*
C: *1#, $20.00* ***D***: *5#, $80.00*
E: *10#, $150.00*

Dakota Black - Organic (100 days) **Open-pollinated.** Outstanding in our observation plots two years in a row. Compact plants with one ear each. Our tasters rated the popcorn “Oh, so scrumptious.” In addition to their popping qualities, Dakota Black’s 4$\frac{1}{2}$" dark maroon-black ears with 15 rows are extremely decorative, a must for the fall roadside stand. 4' stalks. **OSSI** Ω ①

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675 ***A***: *1oz, $3.80* ***B***: *8oz, $17.00* ***C***: *1#, $33.00*
D: *5#, $145.00* ***E***: *10#, $270.00*

Pennsylvania Dutch Butter Flavored - Organic (102 days) **Open-pollinated** popcorn so good on its own that you won’t need to add any butter. Our trialers agreed that it was the best they’d ever tasted: creamy, buttery and delicious. Incredibly green and healthy 8' plants with very long dark green leaves set two 4–6" stocky ears per stalk, with 26–28 rows (occasionally 22) of fat creamy white kernels. Thanks to our friends at Southern Exposure Seed Exchange for enabling us to offer this pre-1885 Pennsylvania Dutch heirloom. SESE was the first to bring this variety to commerce, in 1988. ①

677 ***A***: *1oz, $3.50* ***B***: *8oz, $14.00* ***C***: *1#, $25.00*
D: *5#, $110.00* ***E***: *10#, $210.00*

Calico (105 days) **Open-pollinated.** An heirloom dual-purpose corn with 5–8" ears that look like smaller versions of Indian corn. The shiny bright ears come in an array of colors, with red, yellow and mottled rosy-brown most common, but brown, purple, blue, white and other combinations possible. Kernels are smaller than those of most Indian corns, but larger than conventional popcorns. Calico is both decorative and edible so you can hang it on your door in fall and pop the very same batch on Thanksgiving. Seed grown by Linda Bisek in Minnesota. ~200 seeds/oz. ①

679 ***A***: *1oz, $3.50*
B: *4oz, $8.60*
C: *1#, $28.00*

Field corn: see p. 121.
Cress: see Greens, p. 30.

FLINT, ORNAMENTAL & FLOUR CORNS

Average 100-160 seeds/oz. All open-pollinated. Days to maturity are for dry stage.

Painted Mountain - Organic (85 days) Short efficient 5' plants, long thin 6–7" cobs. Painted Mountain is the hardiest, fastest-maturing grain corn in the world. Dave Christensen has spent over 40 years developing it in the mountains of Montana from a diverse gene pool of about 80 strains of native corns. Contains vivid golds, oranges, reds and purples, about every shade of color known to corn. High in anthocyanins and has amazing 13% protein levels. Bred to withstand high winds, cold temperatures, intense heat and drought, and to survive global warming. Painted Mountain grows where no other corn can. In the chilly microclimate of her Tustin, MI, farm, most of Betsy Erickson’s plants survived and recovered from a monumental hail/wind/thunderstorm on July 27, 2014. Her real thrill was in grinding and using the cornmeal, which is very tasty in pizza dough and in her Swedish Knäckebröd (recipe on our website). Ω ①

680 ***A***: *1oz, $4.50* ***B***: *8oz, $20.00* ***C***: *1#, $32.00*
D: *5#, $142.00* ***E***: *10#, $270.00*

Abenaki Calais Flint - Organic (88 days) Coached by Dave Chistensen of Painted Mountain fame, our grower, Adam Nordell, has worked diligently to reselect Abenaki Flint back towards its original form. Because Christensen holds great appreciation for this eastern “brother” to Painted Mountain, calling it “the toughest of all the Eastern corns,” he lauds the restoration. The original, kept by the northern Vermont Abenaki tribe, was selected for generations to produce ears that are long, thin and cylindrical, with an even 8 rows all the way to the shank. This form is valuable for drying early in the short Northeast season, before it can spoil from the freezes, surviving even the legendary summer of 1816 (“Eighteen hundred and froze to death.”) The 7–9" ears are either solidly golden yellow or a beautiful dark maroon, with some skewing a bit towards orange shades. Though Tom Vigue prefers *growing* Abenaki because it’s better adapted to our climate, he still prefers *eating* Floriani. **Indigenous Royalties.** ①

682 ***A***: *1oz, $3.00* ***B***: *8oz, $12.00* ***C***: *1#, $21.00*
D: *5#, $90.00* ***E***: *10#, $170.00*

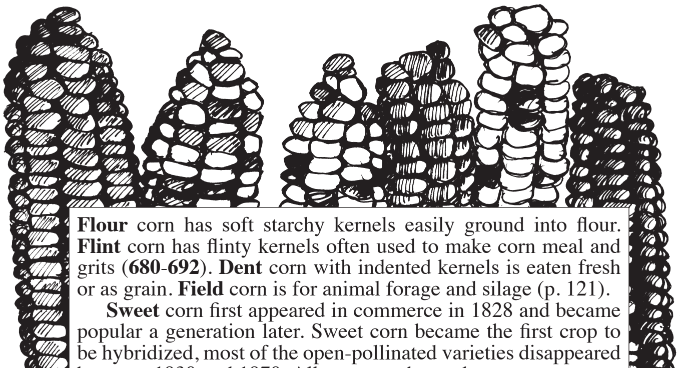
Floriani Red Flint - Organic (100 days) *Z. m.* var. *rostrato* Steady appreciation from corn aficionados has now replaced the unprecedented demand this variety first enjoyed when we lauded it as an exceptionally beautiful variety with fabulous flavor. The red pointed kernels (white when immature) are easy to shell and grind into a fine pinkish meal that bakes with an appealing spongy texture. Floriani’s richly sweet delicious corny taste beat the competition silly in our pancake and cornbread muffin bake-off. Moreover with a 12% protein content, compared to about 9% for most other varieties, it’s a beneficial staple as well. Heirloom from the Valsugana Valley of Italy and brought to wider attention by William Rubel, it was once the staple polenta corn in the valley and was named for Rubel’s friends who’ve grown it there for many years. ①

688 ***A***: *1oz, $3.00* ***B***: *8oz, $12.00* ***C***: *1#, $21.00*
D: *5#, $95.00* ***E***: *10#, $180.00*

Hopi Blue (100 days) Precursors of this strain have been raised continuously for 800 years on the mesas of northern Arizona and are used by the Hopis to make ceremonial piki bread. Tall 9' plants produce large 8–10" ears with beautiful deep kernels easily ground into flour. Very drought-tolerant, with a long taproot. Dick Burnham of Talking Crow Organic Farm in western Massachusetts reports it is not just for flour, it is good to eat, “crunchy, corny and wholesome.” **Indigenous Royalties.**

Hopi Blue ②
691 ***A***: *1oz, $3.00* ***B***: *8oz, $13.00* ***C***: *1#, $21.00*
D: *5#, $90.00* ***E***: *10#, $170.00*

Hopi Blue - Organic ②
692 ***A***: *1oz, $3.60* ***B***: *8oz, $16.00*



Flour corn has soft starchy kernels easily ground into flour. **Flint** corn has flinty kernels often used to make corn meal and grits (**680-692**). **Dent** corn with indented kernels is eaten fresh or as grain. **Field** corn is for animal forage and silage (p. 121).

Sweet corn first appeared in commerce in 1828 and became popular a generation later. Sweet corn became the first crop to be hybridized, most of the open-pollinated varieties disappeared between 1930 and 1970. All sugary enhanced sweet corn traces back to a single inbred developed in the 1960s in Illinois by Dr. Dusty Rhodes, ILL677a. Our trialers have found SE corn to be especially suitable to our climate, with good cool-soil tolerance and a near-perfect blend of sugars and corn flavor.

CUCUMBERS

Cucumis sativus

~35 seeds/g; ~1000 seeds/oz; variations noted.

Culture: May be started indoors for early production, or direct-seeded. Very tender, will not survive frost. Direct seed 3" apart thinning to 1' apart in rows 4-6' apart, or 6 per mound in hills 4' apart thinning to 3 best plants. Transplant 1' apart in rows 4-6' apart. Do not sow in cold soil. Cucumbers require good fertility and regular rain or irrigation for abundant yields. Without adequate water, fruits will be misshapen and bitter.

Minimum germination temperature 60°, optimal range 65–95°.

Parthenocarpic varieties (**1214**, **1239**, **1380**, **1392**) can set fruit without being pollinated, an advantage in cold cloudy summers. **Gynoecious** varieties (**1214**, **1232**, **1328**) produce almost exclusively female flowers for uniformity and high yields.

Diseases:

ALS	Alternaria Leaf Spot	DM	Downy Mildew
ANTH	Anthracnose	PM	Powdery Mildew
BW	Bacterial Wilt	R	Rust
CMV	Cucumber Mosaic Virus	TLS	Target Leaf Spot
CVYV	Cucumber Vein Yellow Virus		

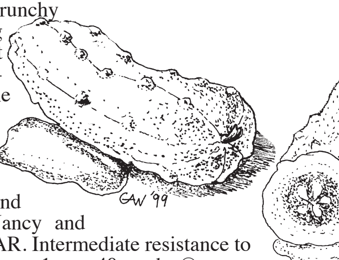
Pests: Combat striped cucumber beetles by handpicking early when the dew makes them sluggish, or use floating row covers, removing when cukes flower. Cucumber beetles are the vector for BW. Pick cukes frequently for best production, or else the plants shut down. Make sure to remove blimps to the compost pile.

For additional info about cucurbit pest and disease control, see page 62.

Days to maturity are from direct seeding. From transplant, subtract 20 days.

PICKLERS

Ronda (50 days) F-1 hybrid. In our 2015 pickling cuke trial, Ronda caught our fancy. From 3 short-vined plants we harvested upwards of 130 handsome dark green gherkins over 4 weeks. **Gynoecious**, **parthenocarpic** and early, Ronda also sported lasting foliage health in a bad PM season. For those perfect tiny sour pickles with fine crunchy texture, we recommend picking fruits at 3" long or smaller. Not at all bitter, Ronda is sweet and buttery when raw, large or small. “The Ronda cucumber seeds were a bit pricey but they all grew and you forgive them their cost when you pick them—three times as prolific as any others we planted and most excellent flavor,” testify Nancy and Bruce Nickel of Mountain Home, AR. Intermediate resistance to CVYV, CMV, PM. Sold by seed count: 1g = ~40 seeds. ④



1214 ***A**: 10 seeds, $4.60* ***B**: 40 seeds, $16.00*
***C**: 160 seeds, $56.00* ***D**: 400 seeds, $120.00*

Sassy (52 days) F-1 hybrid. Although rated mid-late season by its breeder, this cuke is sassy enough to produce like crazy in the early slot. Though some picklers tease you with a handful at first picking, a mere three Sassy plants yielded more than 25 flawless very dark green 4" fruits during their first week of harvest. Vigorous long vines, dark green healthy foliage and predominately female flowers continue this bounty, barely slowing after 4 more harvest weeks. Uniform long narrow pickles are sweet, crisp and thin skinned. Perfect for whole dills, but versatile for any favorite pickle recipe. High resistance to scab and ANTH. Intermediate resistance to CMV, ALS, PM. ⑤

1218 ***A**: 1g, $2.00* ***B**: 4g, $4.00* ***C**: 16g, $9.00*
***D**: 32g, $12.00* ***E**: 112g, $36.00*

National (52 days) Open-pollinated. Introduced in 1929, the result of a 5-year collaboration between the National Pickle Packers Association and the Michigan Agricultural Experiment Station. Suitable for both small pickles and dills. Holding quality over a long season, the firm black-spined dark green fruits are usually quite sweet, rarely bitter. Plants are vigorous dependable producers. Resists CMV and scab. ②

1226 ***A**: 1g, $1.70* ***B**: 4g, $2.80* ***C**: 16g, $4.00*
***D**: 32g, $5.00* ***E**: 112g, $12.00* ***K**: 448g, $34.00*

Calypso (52 days) Heavy-yielding **gynoecious** hybrid developed by North Carolina State. Fruits medium-dark green with white spines. In a trial of 7 pickling varieties at Highmoor Farm, Calypso showed prolific fruit set and had the highest early yield. Tolerant to ANTH, ALS, CMV, DM, PM, resistant to scab. ②

1232 ***A**: 1g, $1.70* ***B**: 4g, $2.80* ***C**: 16g, $4.00*
***D**: 32g, $6.00* ***E**: 112g, $16.00* ***K**: 448g, $44.00*

Cross Country (57 days) F-1 hybrid. Named for its widespread adaptability, Cross Country goes the distance. The best pickler in our trials, it bears abundant blocky straight dark green white-spined fruit of uniformly good quality with very small seed cavities. Our trialer described its sweet taste as “crunchy and cool.” Had good yields (5½ lb per plant), appearance, and long uniform fruit in Highmoor Farm trial. Has been highly rated in brine tests. Resistant to scab, but susceptible in our trial to BW. Resistant to ANTH, ALS, PM and DM. ⑤

1234 ***A**: 1g, $1.80* ***B**: 4g, $4.00*
***C**: 16g, $8.00* ***D**: 32g, $13.00*
***E**: 112g, $38.00* ***K**: 448g, $140.00*

Little Leaf H-19 - Organic (60 days) Open-pollinated. This white-spined **parthenocarpic** pickler sets fruit even when our pollinator friends are challenged by the weather. Compact vines with distinct little leaves save space and leave ripe cukes much more visible. Despite the plants’ skimpy appearance, they produce a huge number of cukes, even under stress. Full-sized at 3–4", these bijou blocky fruits serve double duty for fresh snacking and pickling. Has become a big customer favorite and rated as Donna Dyrek's top choice among the 21 picklers in her Zone 4 2015 trial. Best suited for outdoor production. Bred in the Ozarks at the University of Arkansas and released in 1991. Resistant to ANTH, ALS, DM, CMV, PM, scab. ①

1239 ***A**: 1g, $2.30* ***B**: 4g, $4.50* ***C**: 16g, $7.20*
***D**: 32g, $11.00* ***E**: 112g, $26.00*

SLICERS

Lagos (45 days) F-1 hybrid. With tasty Ministro discontinued by its supplier, we’ve been searching for a new reliable slicer. Lagos shows diverse use in high tunnel, greenhouse and open field. Its rapid growth begets early harvest, before Ministro, and in sync with market grower fave Corinto. Lagos’ high yield of almost entirely dark green, 8–9" long slender fruits continues long after others peter out. Topping Ministro’s total yield and with a more tender skin, Lagos is crisp, sweet and flavorful. **Parthenocarpic** Lagos also has a leg up on Ministro for hoophouse trellising, as well as steady fruit set in the field on rainy and cold days when bees are less active. High resistance to CMV, CVYV, Scab, TLS, PM. ④ **NEW!**

1300 ***A**: 15 seeds, $3.20* ***B**: 30 seeds, $5.60*
***C**: 60 seeds, $9.50* ***D**: 300 seeds, $39.00*

Ministro (49 days) *Dropped by our supplier.*

Marketmore 86 - Organic (56 days) Open-pollinated. White-spined slicer bred by Dr. Henry Munger of Cornell, released in 1986. Each of Munger’s numbered Marketmore creations is a leap forward in yield and disease resistance. Yet he never sacrificed flavor. In our 2018 and 2019 trials, his “86” challenged our singular adoration of Marketmore 76. “86” is 5 days earlier, with a much darker green skin and its 8" length is slightly slimmer. While not of bush-habit, “86” is a less sprawling but leafy plant with high yields equal to “76”. And the crisp clean non-bitter cuke flavor is paired with a small seed core. We found its quality consistent even through 2018’s dry heat; this along with a broader disease resistance package makes it a promising variety for many U.S. regions. Resistant to DM, PM, Scab, CMV. ① **BACK!**

1340 ***A**: 1g, $2.00* ***B**: 4g, $3.00* ***C**: 16g, $6.00*
***D**: 32g, $9.00*

Marketmore 76 (63 days) Dr. Henry Munger’s classic open-pollinated cucumber for the ages, long the leading slicing variety in the Northeast, we still sells nearly 5,000 packets per year! Dark green 8–8½" fruits show good uniformity. Vines vigorous throughout season. Resistant to CMV, DM, PM, and scab.

Marketmore 76 ②

1312 ***A**: 1g, $1.60* ***B**: 4g, $2.40* ***C**: 16g, $4.20*
***D**: 32g, $5.50* ***E**: 112g, $12.00* ***K**: 448g, $31.00*

Marketmore 76 Organic ③

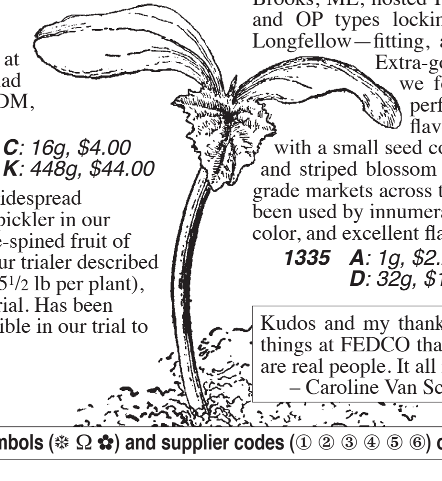
1313 ***A**: 1g, $1.70* ***B**: 4g, $2.70* ***C**: 16g, $4.40*
***D**: 32g, $5.80* ***E**: 112g, $15.00*

General Lee (66 days) F-1 hybrid. “General Lee does amazingly well here. Guess he’s glad to be back home. Yields longer than any other through heat, humidity, drought and bugs,” relates Linda Paul of Barhamsville, VA. Also a pretty fair performer up north, this **gynoecious** General has high yields of uniform straight dark-green white-spined 8–8½" slicers that don’t peter out in the halcyon days of summer. Doesn’t develop yellow “bellies” and retains that good Sweet Salad flavor. From a May 13 direct seeding, our 2012 harvest began July 8 and continued into late August. Despite persistent drought, half the fruits were still of marketable quality in mid-August. Resistant to scab, CMV, PM and DM. ⑤

1328 ***A**: 1g, $2.70* ***B**: 4g, $5.00* ***C**: 16g, $13.00*
***D**: 32g, $22.00* ***E**: 112g, $70.00*

Longfellow - Organic (70 days) Open-pollinated. Bred and released in 1927 by Jerome B. Rice Seed Co, Cambridge, NY. Stubborn Ox Farm of Brooks, ME, hosted Fedco’s 2018 extensive slicing cuke trials with hybrid and OP types locking horns. Winning easily was white-spined classic Longfellow—fitting, as Maine whelped and educated the famous author. Extra-good Fellow came into picking mid-late season, but we found the 8–9" long and 2" wide stage to be eating perfection: skin crunchy but not tough, sweet and full cuke flavor, flesh crisp but then immediately juicy and melting, with a small seed core. Steady vigor and yield with few duds. Light green and striped blossom end. Originally prized as a “straight pack” for high-grade markets across the Northeast, Longfellow or its close derivatives have been used by innumerable breeders to impart similar ideal length, dark green color, and excellent flavor. ②

1335 ***A**: 1g, $2.20* ***B**: 4g, $4.60* ***C**: 16g, $10.00*
***D**: 32g, $16.00* ***E**: 112g, $37.00* ***K**: 448g, $130.00*



> Kudos and my thanks for transition and change—and for the unchanged things at FEDCO that keep clean seed coming our way from growers who are real people. It all really matters and I remain grateful.
> – Caroline Van Schaik, La Crescent, MN

BEIT ALPHA CUKES

Descended from a vegetable that grows wild in the dry climate of the Middle East, developed in Israel by breeders on the Beit Alpha kibbutz. These small sweet-fleshed cucumbers were originally popular in the Mediterranean, spread to Europe and thence to the States. They don't dehydrate easily, their thin skins don't require peeling, they are almost completely burpless and have a long shelf life.

Socrates - Organic (52 days) F-1 hybrid. Fedco website guru Clayton Carter makes this trellis cuke his top choice for protected culture. Trained to a manageable 6' height, Socrates lacks for nothing in vigor or foliage health. The strong thick stems steadily set straight 7–8" fruit. Smooth thin dark green skin gives way to crunchy sweet seedless pale green flesh. With its tolerance of cool temps and its disease-resistance, Socrates makes a "most excellent" variety to return your high-tunnel investment. **Parthenocarpic.** *Note*: Seeds will result if insect pollination is allowed. Resistant to scab. Intermediate resistance to PM. ~31 seeds/g. ④

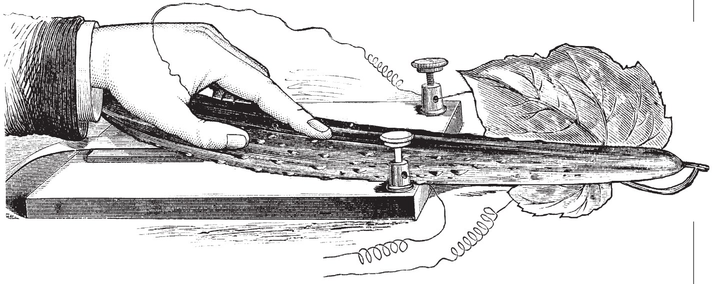
1380 ***A***: *15 seeds, $10.00* ***B***: *30 seeds, $18.00*
C: *60 seeds, $30.00* ***D***: *300 seeds, $135.00*

Super Zagross (54 days) Open-pollinated. *Crop failure*.

LONG-FRUITED CUKES

Long-fruited Asian cukes are more resistant to CMV than other types.

For really straight cukes, consider trellising. Adam Tomash and June Zellers grew theirs on a 5' arch made from cattle panel, a welded wire material with big holes.



Telegraph Improved European (60 days) Open-pollinated. "A consistent performer in our greenhouse," said Michael Goldman of Florence, MA. Also suitable for growing outdoors, this European cucumber has long (10–14") slim smooth-skinned fruits of very delicate mild flavor, seldom bitter and containing few seeds. Telegraph Improved was selected from Telegraph Long, one of the original parthenocarpics, which the folks at Baker Creek date back to 1897. Trellis vines for better-quality straight cukes. **Parthenocarpic.** ~33 seeds/g. ②

1392 ***A***: *1g, $2.80* ***B***: *4g, $9.00* ***C***: *16g, $24.00*

Suhyo Long - Organic (61 days) Open-pollinated. Known for its sweet mild burpless flavor, this Asian cucumber grows up to 15" long with a curly shape if unsupported. For straighter fruit that packs better, Jason Kafka grows these in his greenhouse in vertical hedges, stretching **8859** Trellis Netting (p. 141) between conduits. According to Tom Vigue these make good dense pickling cukes if picked young enough. Sets well in heat. Resists PM. ①

1394 ***A***: *1g, $2.60* ***B***: *4g, $4.60* ***C***: *16g, $9.00*
D: *32g, $14.00*

Shintokiwa - Organic/Biodynamic (62 days) Open-pollinated. Tom Vigue and Adam Tomash both recommended this productive smooth-skinned long slender cucumber that first surfaced in the Turtle Tree catalog. The hands-down winner at Tomash's trial, combining looks, health and flavor. Rated by Tomash as superior to the Suhyo cultivars with better uniformity, fewer defective bottoms and more resistance to BW. The fruits, averaging 9–10" and growing up to an edible size of 1' in good fertility, are sweet, crisp and juicy without bitterness. One trial taster described their flavor as "flowery, buttery and delicious." Robert Wasserman of Wasserman Family Farm in Corrales, NM, reports that they have a faithful following at the growers' market—even among little kids. Editor Elisabeth Benjamin's favorite for fermented pickles. ①

1396 ***A***: *1g, $2.60* ***B***: *4g, $5.80* ***C***: *16g, $16.00*
D: *32g, $26.00*

Painted Serpent (55 days from transplant) *C. melo* var. *flexuosus* Open-pollinated. Also known as Armenian Cucumber or Snake Melon, native to Armenia and brought to Italy in the 15th century. William Woys Weaver says, "This is one of the oldest of our heirlooms, yet one of the most neglected by our gardeners," oft exhibited but seldom eaten. Yet its flavor surpasses that of cucumbers, excelling in salads and stir-fries without bitterness or burps. Slender slightly fuzzy flexuous fruits delicately coil like a serpent with alternate light and dark green stripes. Culture like the melon it is, starting indoors in individual pots and transplanting into a low tunnel. Will grow up to 30" but best eaten at 8–18". Straighter if trellised. Never grew well on CR's central Maine clay, but a prolific producer on his sandy Colrain, MA, soil, beginning as early as July 26 one warm dry season. Bite into the snake that doesn't bite back! ~24 seeds/g. ③

1388 ***A***: *1g, $1.80* ***B***: *4g, $2.60* ***C***: *16g, $4.50*
D: *32g, $7.00* ***E***: *112g, $16.00*

SPECIALTY CUKES

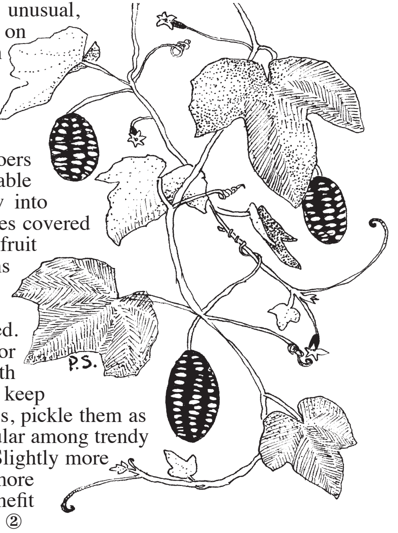
Boothby's Blonde - Organic (63 days) Open-pollinated. Maine boasts an heirloom cucumber, maintained for five generations by the Boothby family of Livermore. Boothby's short plump oval fruits average 3–4" and become yellower as they mature. Creamy exteriors with contrasting black spines and juicy refreshing interiors. Larger seed cavities than most cukes, but the seeds actually add to the mild sweet flavor that makes the fruits so good for eating out of hand. Boothby's usually lacks the bitter aftertaste so common in many of the other white cukes we've trialed. Has the "cool" texture uncommon in American cukes. Boothby's goodwill ambassador Will Bonsall originally passed it on both to Pinetree Seeds and to us. ①

1311 ***A***: *1g, $2.40* ***B***: *4g, $3.60* ***C***: *16g, $8.40*
D: *32g, $15.00* ***E***: *112g, $30.00*

Silver Slicer - Organic (64 days) Open-pollinated. Psst! We'd love to pass on a secret known to few: this superior Cornell University slicer may be the best eating cucumber of them all. Megan Rulli of Piney Moutain Orchard in Gardners, PA, calls SS "the cucumber of my dreams." Incorporates all of the good features of **1311** Boothby's Blonde in a better package. Longer (7–8") and slimmer (fairly narrow 1" core) than Boothby's with a creamy-white tender skin. Heavy set of buttery crunchy crisp fruits, neither watery nor ever bitter. Resists PM and keeps going till September. Seed for this variety is sold under a license and a portion of the proceeds goes to support public vegetable breeding at Cornell. ~51 seeds/g. **Breeder Royalties.** ①

1318 ***A***: *1g, $2.10* ***B***: *4g, $4.80* ***C***: *16g, $10.00*
D: *32g, $15.00* ***E***: *112g, $35.00*

Mexican Sour Gherkin (65 days) *Melothria scabra* Open-pollinated. Also known as Cucamelon or Sandía de ratón ('Mouse Watermelon' in Spanish). Native to Mexico and Central America and a staple in diets there since pre-Columbian times. We love the unusual, so when we saw these darlings on exhibit at Common Ground Fair in 2004, we found them irresistible. So did the judges who gave them a coveted Judges' Award. Janet Winslow calls them a "gateway" crop, meaning they inspire fairgoers to explore the diversity of available food crops. Wimpy seedlings grow into rampant yet delicate scrambling vines covered with dozens of 1" green and white fruit that look like miniature watermelons but taste more like cucumbers, with a crunchy texture and a slight sour zing as if they were already pickled. Botanically neither cucumber nor watermelon, they won't cross with either. They don't bruise and they keep for a long time. Try them in stir fries, pickle them as gherkins, or add to salsas. Also popular among trendy bartenders. Easy to grow, and fun! Slightly more tolerant of cold than cukes, and more drought-resistant. The 10' vines benefit from a fence or trellis. ~350 seeds/g. ②



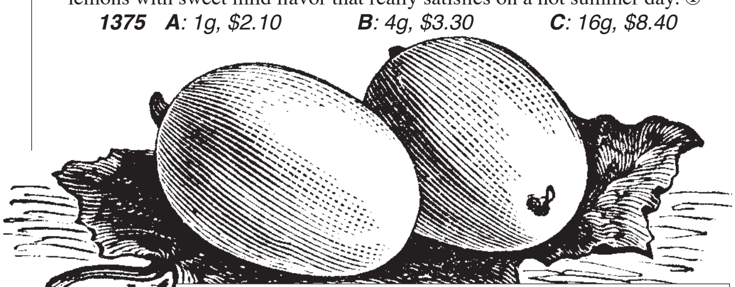
1243 ***A***: *0.2g, $2.80* ***B***: *1g, $6.30*

Lemon (68 days) Open-pollinated. Would you buy a lemon from Fedco? A lot of people will buy this lemon beloved by salad chefs and backyard gardeners alike for its heavy yields of rounded 3" fruits shaped somewhat like lemons. Color evolves from pale greenish yellow (immature though preferred by some customers as most tender and least seedy) to lemon yellow (best eating stage for most) to golden yellow (full maturity and seed production). Very crisp and sweet; never gets bitter and one of the best for eating right out of the garden. Samuel Wilson of Mechanicsville, PA, introduced this lemon in his 1894 catalog. Resists R, tolerates drought and some fungal diseases that attack other white cucumbers. ②

1372 ***A***: *1g, $1.90* ***B***: *4g, $3.00* ***C***: *16g, $5.00*
D: *32g, $6.00* ***E***: *112g, $13.00*

Richmond Green Apple - Organic (70 days) Open-pollinated. What's refreshing and juicy, lemon-shaped and comes from Australia? This hard-to-find heirloom cucumber. Years ago, we feasted on them in our trials and have grown them often since. Beautiful lime green, they get slightly larger than lemons with sweet mild flavor that really satisfies on a hot summer day. ①

1375 ***A***: *1g, $2.10* ***B***: *4g, $3.30* ***C***: *16g, $8.40*



Why don't you folks offer_______? (please fill in the blank)
Can't find your favorite variety? Send us your suggestions!
If possible, please identify your past source for the variety.

We ship seeds to Canada!

EGGPLANT

Solanum melongena

0.2 gram packet is ~33-66 seeds.

Culture: Growing eggplant is a challenge in the north. We recommend raised beds, **8874-6** row covers (p. 141) and plastic or **8412-21** IRT mulch (p. 132). Our selections are the most reliable producers we've found, yet some seasons even our skilled trialers get only sparse production of ripe fruits.

Minimum germination temperature is 60˚, optimal range 75–90˚. Some varieties require fluctuating day and night temperatures.

Pest: Colorado Potato Beetle (CPB) **Cultural controls:** Rotation; control solanaceous weeds like horse nettle; rapid flaming; suction devices; hand-picking if beetle pressure is low; mulch before adults arrive. **Material controls**: **8720** Surround (p. 138), **8762** Spinosad (p. 139), **8765** Pyrethrin (p. 139) For more about CPB, see p. 117 in the Seed Potato section.

Days to maturity are from date of transplanting.

PURPLE ITALIAN TYPES - BELL-SHAPED

Galine (72 days) F-1 hybrid. A classic early bell-shaped Italian-style **purple-black** eggplant that sets fruit and produces early and dependably in the North. Adam Tomash and June Zellers rated it the earliest in their trials, and almost on a par with **3691** Rosa Bianca, their favorite, for flavor. "Mild with a pudding-like texture when cooked," they report. Plus it had larger fruit, averaging about 1 lb each, and was less fussy than Rosa. Trialer Tom Vigue used a high tunnel and reported "phenomenal" eggplants. Galine plants were "4' high and, not exaggerating, 5 lb yield per plant, easily." ⑤

3677 *A: 0.2g, $3.80*
B: 0.4g, $6.00
C: 1g, $9.30
D: 4g, $34.00
E: 28g, $210.00

Black King (79 days) F-1 hybrid. A fine eggplant from Takii in Japan, good for the main crop. A vigorous grower and high yielder suitable for both greenhouse and open-field cultivation. Shiny **purple-black** bulging 7" oval fruits outperformed Diamond in Tomash and Zellers' trial. Their two King plants produced 11 ripe fruit averaging 0.9 lb. Tolerates excess heat. ⑤

3685 *A: 0.2g, $2.80* *B: 0.4g, $4.30*
C: 1g, $5.20 *D: 4g, $15.00*
E: 28g, $75.00

PURPLE ASIAN TYPES - ELONGATED

Swallow (51 days) F-1 hybrid. The one eggplant to grow if you live in a cold part of the world. For early production of glossy **purple-black** tender 1¾x7" fruit of the elongated Asian type without the bitterness often associated with larger eggplants. "Incredibly, my Swallow eggplants have produced here at 60˚ N. latitude. They are in a cold frame on the south side of a greenhouse and have scrap foam under the soil/compost mix…I've had many delicious eggplant dishes—well worth the extra climate modifications," reports Sally Boisvert of Four Winds Farm, Haines, AK. ⑤

3666 *A: 0.2g, $3.10* *B: 0.4g, $4.80* *C: 1g, $9.00*
D: 4g, $28.00 *E: 28g, $140.00*

Pingtung Long (58 days) F-1 hybrid. Long Chinese eggplant named for a town in Taiwan. Great for cooks who prefer to work with uniform slices. Vigorous stress-tolerant plants start producing early for a decent overall yield. Its **light purple** color is especially attractive if harvested before full maturity. As it approaches its full 11", its skin darkens but retains a pleasing sheen. Its sweetness will keep you coming back for more. This is the true hybrid strain that has better quality and flavor than the more common open-pollinated strain. ③

3673 *A: 0.2g, $2.10* *B: 0.4g, $3.20*
C: 1g, $4.40 *D: 4g, $7.00*
E: 28g, $22.00

Diamond - Organic (78 days) Open-pollinated. Kent Whealy brought this elongated slightly tapered **dark purple** eggplant back from Ukraine in 1993. 2' plants set 2½ x7" slender 12 oz fruits in clusters. Firm flesh has good texture and entirely lacks that bitter eggplant taste. Because of its mild flavor and good cold-climate adaptation, Diamond is growing in popularity. Our trialer in Maine had an average yield of 4 lb per plant. ①

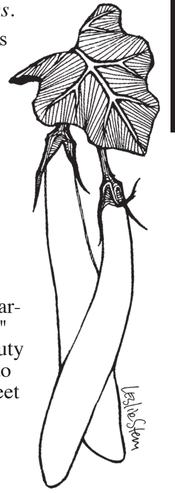
3684 *A: 0.2g, $2.70* *B: 0.4g, $3.60*
C: 1g, $6.00 *D: 4g, $9.00*
E: 28g, $48.00

EGGPLANTS of Other Colors

Annina - Organic (64 days in unheated tunnel, 72 days open field) F-1 hybrid. Annina's slightly curved extended-teardrop shape is covered with **purple and lavender streaks with emanations of ivory and light pink**. From the ½ lb, 5" baby size to the 1½ lb, 8" premiums, the glossy gorgeous skin and cream-white flesh are irresistible. We found the open field trial productivity on par with high-bar setters Galine and Diamond, a welcome surprise from a dual-purpose inside-outside variety. The healthy upright structure and thornless light green calyx add to this showcase of thoughtful breeding: rugged and bountiful for organic growing, picker-friendly, nice "half-long" size, and so stunning you just have to show everyone. ④

3679 *A: 20 seeds, $7.20* *B: 100 seeds, $30.00*
C: 200 seeds, $52.00 *D: 500 seeds, $108.00*

Applegreen - Organic (74 days) *Dropped for slow sales.*



Pure White (75 days) F-1 hybrid. Asian eggplant features beautiful **elongated cylindrical** curved 12x1½" **off-white** fruits that go a long way. The most productive variety in our 2013 trial averaged 4 per plant, with significant ripening around Sept. 4 atnd 70% maturity before frost. Staff tasters noted its "creamy nice texture," "good mild flavor," "moderately chewy skin" and sweetness. ③

3682 *A: 0.2g, $1.80* *B: 0.4g, $2.40*
C: 1g, $3.50 *D: 4g, $7.00*
E: 28g, $30.00

Rosita - Organic (84 days) Open-pollinated. Rosita is productive and tasty without a hint of bitterness. These pear-shaped **pink-lavender** fruits with white shoulders are 6–8" long and 4–6" wide and will stand up in any Solanum beauty contest. Heirloom Rosita, brought to the States from Puerto Rico in 1979, has gained a steady following. Enjoy its sweet delicious tender white flesh. ①

3688 *A: 0.2g, $2.80* *B: 0.4g, $4.50*
C: 1g, $6.50 *D: 4g, $16.00*
E: 28g, $70.00

Rosa Bianca - Organic (88 days) Open-pollinated bicolor Italian heirloom. Alan LePage called it "the best eggplant in the universe," with a creamy consistency and delicate flavor. "Head and shoulders above the rest," added Tomash, "like eggplant pudding." "A plump beauty that likes the Michigan climate," chimed in Anne Elder. Gorgeous rounded fruits, **white with lavender streaking** down the side, about 3–4" across and 5" long, narrow at the top and widening with indentations almost like folds in draped fabric. Fruits average 2 lb, max out at 4 lb, LePage's highest-yielding eggplant. Rosa needs to be coddled, particularly in the northern half of New England. Seed needs alternating temperatures to break dormancy: warm days (preferably 80s), cooler nights (around 70°). ③

3691 *A: 0.2g, $2.40* *B: 0.4g, $3.50* *C: 1g, $5.00*
D: 4g, $10.00 *E: 28g, $30.00*

Endive: see Greens, p. 30.

Remembering Adam Tomash

Our friend and former co-worker, Adam Tomash, died in late April 2019. Adam was a lifelong self-sufficient gardener with a curious mind, a love for learning, and an innovative streak fueled by a degree in chemistry. Adam and his partner June Zellers trialed varieties for Fedco. We refer to their trial notes throughout the catalog. They contributed to the addition of many exceptional varieties on our list including Bay Meadows broccoli, Tokyo Bekana Chinese cabbage, Shintokiwa cucumber and Galine eggplant.

At Fedco in the 1980s and '90s, Adam coordinated the seed-packing room, initially teaching seed packers how to use a triple beam balance, and later bringing in his laptop and teaching them how to use it. Formerly a master auto mechanic, he ran the seed room like a well-tuned machine.

His long history with co-ops started back in the 1970s with the pre-order Bilbo's Birthday. It continued with other pre-orders and Fedco. More recently, Adam and June sold surplus fruit and vegetables to the Gardiner Food Co-op.

Adam was one of the first farmers to have his farm MOFGA-certified organic. He was a big presence in the Exhibition Hall at Common Ground Fair. He organized the fair Ag Demonstrations for years and shared his knowledge in the Country Kitchen demonstration tent and Ag Demo area, where he was known as the Pickle Man for his half sours.

After working for Fedco, he started Blue Moon computer business, repairing and maintaining personal and business computers. He and June established Avant Gardens where they have grown blue-ribbon vegetables and mentored both new and very experienced gardeners. A gardener extraordinaire with a wide-ranging intellect, he wrote about many of his creative ideas for MOFGA's Maine Organic Farmer & Gardener newspaper, articles still available in their archives.

Adam was an avid beekeeper and seed saver. He raised worms for vermicompost and advocated the making and use of Bokashi. Bokashi buckets were one of many products he encouraged us to carry. One of his last projects was growing out Tyee spinach, a hybrid which he discovered grew just fine from his generations of saved seed. Adam shared this seed with Fedco and we are working on a future production.

Farewell, old friend. Rest in peace and rich earth.
– Roberta Bailey

FENNEL

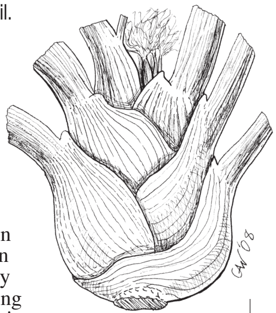
Foeniculum vulgare

All the fennels listed here are **open-pollinated.**

Culture: Fennel prefers rich well-drained slightly limey soil. Direct seed in late April or early May. Do not allow to dry out. Adequate spacing to 8-12" apart is critical. Enjoy the tender juicy thinnings. If left overcrowded all varieties will bolt prematurely. Has potential as a fall crop hardy to under 20˚. Sow in early summer to discourage bolting; keep soil surface moist.

Days to maturity are from date of seeding.

Seed Fennel appears with Herbs on p. 82.



Perfection - Organic (72 days) The acme of Perfection in bulbing fennel, and a good performer in cool soils. Has shown up well in repeated trials, even in warm seasons. Nearly as bolt proof as those pricey hybrids seven times the cost. 5–7 days longer-standing than Zefa, with much thicker bulbs. Our thanks to Eric Schori of Gnarlwood Farm in Lempster, NH, who suggested Perfection. "I've seen Perfection large enough to be used to subdue an ornery moose.… Makes a superb bulbing fennel even at more modest sizes. Sauté with onions, yellow peppers and a little toasted sesame oil and you may… keep it all for yourself instead of taking it to market." ~290 seeds/g. ①

4553 ***A**: 0.5g, $3.00* ***B**: 3g, $7.00* ***C**: 9g, $14.00*
***D**: 27g, $35.00*

Zefa Fino (65 days) This bulbing fennel grows 3' with edible blue-green stems and feathery green leaves. Bred at the Swiss Federal Research Station. Compared to some of the traditional Italian varieties such as Montovani, much more resilient under stress and much less likely to bolt. A spring planting will stand till late summer. We advise a second sowing in July for crisp juicy bulbs till October. Thin to approximately 12" apart in 18" rows. ~200 seeds/g. ③

4556 ***A**: 0.5g, $2.20* ***B**: 3g, $3.70* ***C**: 9g, $8.00*
***D**: 27g, $16.00*

Bronze - Organic (65 days) Slow grower with very thin stems valued for its striking feathery bronze foliage. Delicious and decorative. An intriguing addition to mesclun and to flower beds. ~375 seeds/g. ①

4567 ***A**: 0.2g, $2.20* ***B**: 0.6g, $3.70* ***C**: 3g, $6.50*
***D**: 30g, $18.00*

GOURDS

All gourds are **open-pollinated.**

Gourds come in two major categories (Luffa is a third). The small ones are *Cucurbita pepo* var. *ovifera*, known as ornamental gourds for their variety of shapes, colors and surfaces. The larger ones are *Lagenaria siceraria* or hardshell gourds, named from the Greek *lagenos*, 'a flask,' and sicera, 'an intoxicating drink.' *Lagenaria* lack the color range of their smaller cousins, but fascinate with their magical shapes.

SMALL GOURDS *Cucurbita pepo* var. *ovifera*

~500 seeds/oz. These vigorous viners will usually mature their ornamental fruits in our climate if direct-seeded. **Days to maturity are from date of seeding.**

Tennessee Dancing Gourd (93 days) Anyone who sees these tiny 2–3" adorable **green-and-white striped** bottle gourds falls in love with them. They generated quite a buzz at our Common Ground Fair booth exhibit. We received a nice letter from Junior Gordon of Primm Springs, TN, the original source for this delightful conversation piece. Gordon says these are better known as spinning gourds and advises us to select our seed crops for short, fairly thick straight necks and to rogue out those with the longer crooked necks that won't spin as well. To spin them "take the neck between your middle finger and thumb and snap your fingers with a quick action." Kids in Tennessee used to bring them to school as toys. Rampant vines are extremely prolific producers of the small fruits. Hard shells dry to tan color. ②

1908 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.30* ***C**: 1/2oz, $7.50*
***D**: 1oz, $13.00* ***E**: 4oz, $46.00*

Small Ornamental Mix (95 days) Eight kinds of early-maturing types, with small spoon, bicolored pear, and small orange most prevalent. ②

1912 ***A**: 1/8oz, $2.60* ***B**: 1/4oz, $4.60* ***C**: 1/2oz, $7.50*
***D**: 1oz, $11.00* ***E**: 4oz, $36.00*

Professional Small Warted Mix (95 days) We've jazzed up our usual warted mix with an equally fine but slightly different assortment of flats, rounds, short pears, pears and spoons in a variety of solid, striped and bicolor patterns. **Yellows, greens, oranges and whites** make a bright display. We love them, warts and all. ②

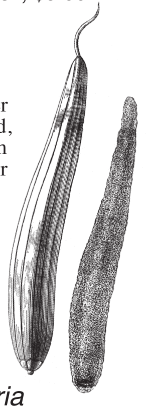
1939 ***A**: 1/8oz, $2.60* ***B**: 1/4oz, $4.60* ***C**: 1/2oz, $7.50*
***D**: 1oz, $11.00* ***E**: 4oz, $36.00*

Autumn Wings (100 days) These are to gourds as the 1957 Cadillac was to cars. They have a double set of fins or wings. The car makers claimed aerodynamic advantages for their design; the gourd breeders make no such assertion. Both the gourd and the car are highly conspicuous. Autumn Wings' colors, a vivid mix of **greens, yellows, creams and whites**, make them even more so. Some of these gourds are straight necked and others are curved. They vary in size, too, one third small, one third medium and the remainder in the large 6–8" range. We stop short of claiming them to be the Cadillac of gourds, but bet they'll make a good roadside stand attraction. ②

1957 ***A**: 1/8oz, $3.50* ***B**: 1/4oz, $5.50* ***C**: 1/2oz, $9.00*
***D**: 1oz, $16.00* ***E**: 4oz, $50.00*

LUFFA or LOOFAH *Luffa aegyptiaca*

~280 seeds/oz. Days to maturity are from transplant.



Luffa (110 days) May be more closely related to the cucumber than to the hardshell *Lagenaria*. Also known as Dishrag Gourd, dried and used for making bath sponges. Some folks pick them young, steam and pan-fry them. In addition to being a scrubber and a comestible, this versatile gourd has been used to make soundproof wall boarding, to insulate army helmets, to stuff mattresses and saddles and even to make filters for steam engines and diesel motors! *Caution: Luffa requires a long season.* Start indoors and culture like melons. We recommend trellising if you want your luffas to remain straight. ②

1962 ***A**: 1/8oz, $2.50* ***B**: 1/4oz, $4.00*
***C**: 1/2oz, $6.00* ***D**: 1oz, $8.00*
***E**: 4oz, $18.00*

LARGE GOURDS *Lagenaria siceraria*

~120–200 seeds/oz. Culture: Because of their long season, hardshell gourds must be started indoors in our climate. To improve germination, sandpaper or clip off the radicle end and soak the seed. They resent transplanting and will grow slowly for a few weeks. Once they take off, these rampant crawlers are noted for their enormous foliage, more velvety in texture than that of other cucurbits, and their large white almost luminous night-blooming flowers. Heavy feeders, they will take up huge amounts of garden space unless trellised. **Days to maturity are from transplant.**

Large Bottle or **Birdhouse** (120 days) Rampant crawling vines produce large gourds with bulbous base and narrow neck, usually with a bulge at the stem end. Grow 14" tall and up to one foot in diameter. Green rind turns white or starts to brown upon maturity. When dried, make durable bottles or birdhouses. ②

1966 ***A**: 1/8oz, $2.50* ***B**: 1/4oz, $4.00* ***C**: 1/2oz, $6.00*
***D**: 1oz, $10.00* ***E**: 4oz, $25.00*

Speckled Swan (120 days) Every year fairgoers gawk at these show-stealers, whether in Jack Kertesz' demonstration gardens or at our booth or in the Hall, admiring Swan's beautiful dark green surface with very pale green 1" splotches. Large round 8–10" base tapers into graceful long neck, sometimes straight, sometimes arched, capped by a small bulb near the stem that looks like a swan's head. Nikos has transformed one into a hunter's harp, swan head and all. ②

1968 ***A**: 1/8oz, $2.40* ***B**: 1/4oz, $4.00* ***C**: 1/2oz, $7.00*
***D**: 1oz, $12.00* ***E**: 4oz, $25.00*

Corsican Canteen (125 days) *Not enough takers; dropped.*

Bushel (135 days) Shaped like a large bowl with a pot lid on it. Can grow enormous given sufficient heat, but in Maine will probably max out at 18" across. *Caution: requires a long season to mature.* To improve your chances, limit each vine to one fruit. Prune to halt vine growth after it sets first fruit. ②

1990 ***A**: 1/8oz, $2.60* ***B**: 1/4oz, $4.60* ***C**: 1/2oz, $8.00*
***D**: 1oz, $12.00* ***E**: 4oz, $36.00*

Curing Lagenaria Gourds is Easy

Hardshell gourds are 90% water at harvest. They need to be cured or dried, a slow process of evaporation through the outer shell, which is covered by a thin ivory-green skin. Curing can take 6 weeks to 1 year (average time 4 months) depending on gourd size, thickness of shell, weather and storage conditions.

Immature gourds (that have not developed a thick shell) will rot after harvest. Mature gourds are large and weighty. To cure, store off the ground in a well-ventilated room or unheated outbuilding. For a smooth beige surface, scrape off the outer skin after it loosens and darkens. (Freezing and thawing loosens the outer skin.) Outer skin, if left on, may become moldy; mold-patterned skin will dry to the gourd shell and can be sanded off, painted over or incorporated into the decoration.

How to Produce a Luffa Sponge

When luffas are ripe their skins turn brown and dry and stems turn yellow. Check your plants frequently and harvest only ripe gourds. Full-sized fruits that are still green produce soft, fine-textured sponges that don't last. After the first killing frost remove any nearly ripe gourds to a warm well-ventilated place to allow them to dry. Gourds left wet for long will readily discolor.

If the luffa has just ripened, gently squeeze and pop its skin. Break the blossom end cap and pull the vascular bundle (that's the sponge!) up the side of the gourd like a zipper. The sponge will pop out, wet and white. Quickly rinse it in water to prevent oxidation.

If gourds are too dry to pop the sponge out, ret them (thoroughly soak in water) for several days until the skin sloughs off leaving only the spongy fiber. After retting, shape and dry the sponge. Remove seeds either before or after retting. We found it easy to do before retting: cut open the larger end of the gourd and either shake or rinse out the seeds. If you wish to whiten the sponges, bleach by soaking either in a 10% bleach solution or in hydrogen peroxide. Rinse luffas thoroughly in clean water and dry before use.

GRAINS

The selections here are rare heirloom varieties, **all open-pollinated**, especially chosen for small-scale production. Revived interest in food security and sovereignty inspires us to seek edible and heirloom grains.

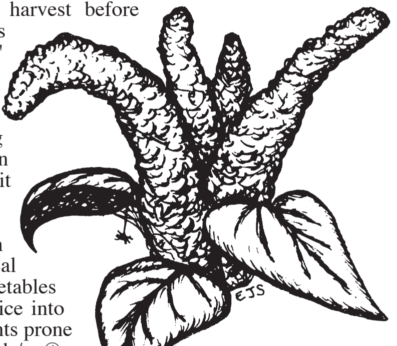
For barley, oats, wheat, and cover crops check out our Farm Seed section beginning on page 118. For ornamental grains, amaranth, p. 88; millet, p. 96; sorghum, p. 100; wheat, p. 102.

BARLEY

Burbank Hulless Barley - ECO *Hordeum vulgare* An historic 6-rowed barley selected by Luther Burbank from California hulless barley. In his final seed catalog he called it "one of (his) greatest grain creations." Will Bonsall recommended it for its tall heavy stalks that allow it to stay erect without lodging. Golden plump grains with a rich nutty flavor and 14% protein content. Has awns. Sown at 6" spacing rather than broadcast, our packet will cover a 200 sq ft bed with 600–800 plants likely, based on Bonsall's experience, to yield 5–8 lb of seed. ~885 seeds/oz. ① **BACK!**

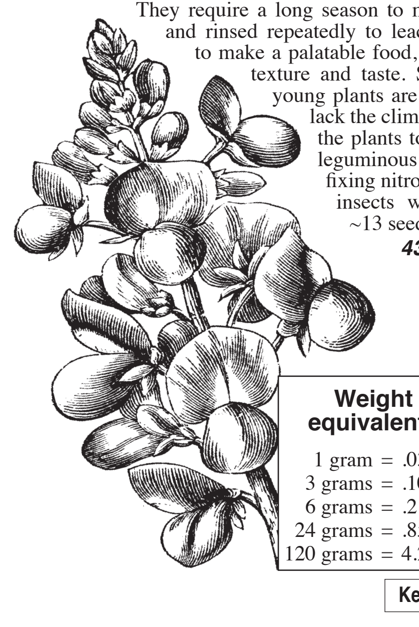
4303 *A: 7g, $2.90* *B: 28g, $9.00* *C: 112g, $20.00*

MESO-AMERICAN "GRAINS"



Opopeo Amaranth - Organic *Amaranthus hybridus* (125 days to seed) The grain of the gods from Opopeo, Mexico. Amaranth was one of the Aztecs' five principal crops. They ground puffed seeds into flour and prepared sauces with the leaves. Amaranth grain has 14–16% protein. Used as a green until flower-set (~65 days). Tom Vigue sows thickly after frost danger, enjoying the bronze-green leaves from 4–6" and the top leaves until the plant reaches 2'. Vigue says, "Never stringy, always tender…a lot more massive than spinach," to which it tastes similar when cooked. Not great raw. Thin to grow grain, as huge plants require 2' spacing, or start as transplants to increase chances of beginning your seed harvest before heavy autumnal rains. Opopeo's magenta-purple stems grow 4–8' topped by 2' deep burgundy flower spikes each laden with 4–8 oz of seed grain. Grain matures from early to mid October. Cut and hang the heads to dry inside rather than field-curing in wet autumns. Wait until grain is crumbly dry and then rub against a mesh screen to thresh. Boil 2 parts water to 1 part grain for a high-protein gluten-free cereal or mix with pumpkin meal, vegetables and herbs, allow to harden, and slice into fryable patties. Multi-branched plants prone to lodging in loose soils. ~1250 seeds/g. ①

4300 *A: 1g, $3.00*
B: 4g, $6.50
C: 16g, $15.00



Tarwi *Lupinus mutabilis* (130 days, longer to seed) We thank Gary Kaszas of Fort Fairfield, ME, for providing us with the impetus to offer Tarwi, one of the "lost" crops of the Incas. Years ago he sent us seeds he had accessed from the USDA seed bank for this wild-looking 3' lupine native to the high Andes. In our trials, we were first attracted to its highly scented flowers of mountain-sky blue, lilac and yellow, with yellow and white keels. More than just a beautiful ornamental, Tarwi is potentially an important food crop. With a full range of essential amino acids and more than 40% protein, its luminous pearly-white bean-like seeds (2–6 per pod) surpass soybeans nutritionally. They require a long season to mature, and must be soaked and rinsed repeatedly to leach out their bitter alkaloids to make a palatable food, somewhat akin to barley in texture and taste. Start the seed indoors—the young plants are frost sensitive. Even if you lack the climate or the dedication to grow the plants to seed, all is not lost. These leguminous beauties grow in poor soil, fixing nitrogen and attracting beneficial insects with honey-scented flowers. ~13 seeds/2g packet. ⑤

4314 *A: 2g, $3.60*
B: 6g, $9.00
C: 18g, $22.00
D: 54g, $50.00

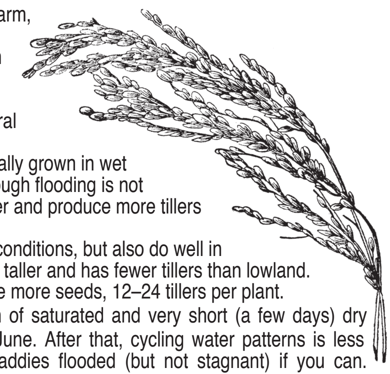
Weight equivalents

1 gram = .035 oz
3 grams = .106 oz
6 grams = .212 oz
24 grams = .851 oz
120 grams = 4.24 oz

1/16 oz = 1.77 g
1/8 oz = 3.55 g
1/4 oz = 7.09 g
1/2 oz = 14.2 g
1 oz = 28.4 g
4 oz = 113.5 g
1# = 453.6 g
2.2# = 1000 g

RICE *Oryza sativa*

~30 seeds/g.



Grow rice in Maine! Wild Folk Farm, growers of Akamuro, Hayayuki and Titanio, started with 5g of each from the USDA and have been selecting the best traits from each variety. All four of our rices were grown in central Maine, Zone 5a/4b.

Lowland varieties are traditionally grown in wet clay paddies or riparian areas, although flooding is not necessary. They are typically shorter and produce more tillers than upland rice, 30-50 per plant.

Upland varieties grow in drier conditions, but also do well in flooded clay paddies. Upland rice is taller and has fewer tillers than lowland. Each tiller is thicker and will produce more seeds, 12–24 tillers per plant.

Culture: For both types, a rotation of saturated and very short (a few days) dry periods is ideal from late May to June. After that, cycling water patterns is less important but still helpful. Keep paddies flooded (but not stagnant) if you can. Dryness during the second half of the summer shouldn't affect yields much, just maturation time and weed pressure. For transplants, start at 70–85° indoors 4–5 weeks before setting out into rich moist warm soil (early June in Maine). Space plants 10–12" apart in full sun. May be direct seeded in warmer regions. Heads the first week of Aug. and finishes by late Sept. If you live in a dry place, add 1–2 weeks to maturity dates. It's possible to harvest 6–10 lb of rice from a 100' row.

Want help processing your rice? Contact wildfolkfarmers@gmail.com

Days to maturity are from transplant. Add 20 days for direct seeding.

Akamuro (105 days) A fast-maturing **lowland** rice, *aka* means 'red' in Japanese, and *muro* is 'root cellar' or 'ice house.' Originating in Hokkaido, Japan, this delicate rice, one of the skinniest, is a true heirloom. The aromatic seeds mature from pearly white to red. Hulls are burnt orange when mature, making Akamuro extremely ornamental. The bobolinks (or ricebirds) love to share the harvest. Hardy to Zone 4b from transplant. Regardless of water management, this rice doesn't produce many tillers from transplant, so it is a good candidate for direct sowing in 5a or warmer. ①

4310 *A: 1g, $1.80* *B: 4g, $3.70* *C: 28g, $10.00*
D: 112g, $30.00

Hayayuki (105 days) A **lowland** rice, *hayayuki* is Japanese for the first snow of the season, which perhaps coincides with its harvest in colder climates. Very nutty and full flavored. Fast to mature, it can work in Zone 4b in paddies from direct sowing but does best from transplants. Sensitive to dry weather, for large yields Hayayuki craves saturated soil until July. Tops out at 3'. ①

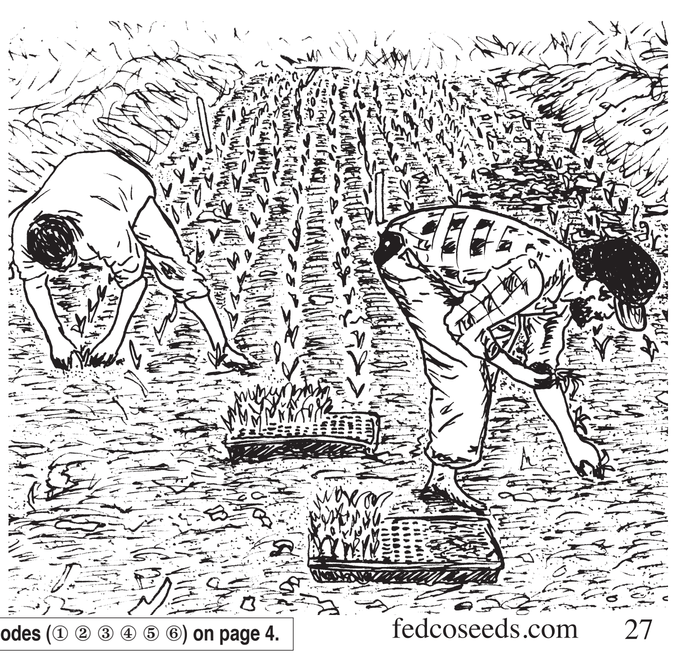
4311 *A: 1g, $1.80* *B: 4g, $3.70* *C: 28g, $10.00*
D: 112g, $30.00

Duborskian (115 days) Roberta Bailey got this **upland** short-grain hardy Russian variety from Seed Savers Exchange member Anpetu Oihankesni of Colorado. Well adapted to dry-land production, sturdy plants resist lodging, grow to 20–24" producing 12–18 tillers per plant, each bearing a rice pannicle. Can withstand a light frost. May be direct seeded in warmer regions. ①

4312 *A: 1g, $1.80* *B: 4g, $3.70* *C: 28g, $10.00*
D: 112g, $30.00

Titanio (120 days) An **upland** short-grain brown rice from Italy. Used for risotto with creamy texture and great flavor. Very dense spiraling seed heads. Zone 5a from transplant. ①

4313 *A: 1g, $1.80* *B: 4g, $3.70* *C: 28g, $10.00*
D: 112g, $30.00



Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

GREENS

All greens are **open-pollinated** except where noted. Look for the snowflake symbol ❆ after each cultivar description for indication that a variety is hardy through at least a part of our Maine winter.

Days to maturity are from direct seeding.

GREENS MIXES

Mesclun According to Rosalind Creasy, the original mesclun used all parts of the tongue, with a range of textures from crispy to velvety and of tastes from tangy to bitter. Our mixture consists of two packets: **2980** Lettuce Mix (p. 37) and **2996** Mustard Mix (below). Harvest these greens by cutting the leaves with scissors, leaving 1–2" of foliage as well as the apical bud and several small leaves surrounding it, so that they can grow back. Plant each packet in adjoining beds or rows so that the mustards won't overwhelm the lettuces. Plant lettuces about 4 weeks earlier for them to mature at the same time. You can enhance your mesclun by adding other greens such as mâche, claytonia and bronze fennel. Add edible flowers of garlic chives, nasturtiums, violas, signet marigolds, borage and mustard blossoms to lend further appeal to the mix, creating delectable color, taste and texture contrasts.

2992 ***A**: 1g, $2.80* ***B**: 4g, $6.30* ***C**: 14g, $12.00*
***D**: 28g, $20.00* ***E**: 112g, $65.00*

Greens Mix - Organic Versatile companion to **2981** Organic Lettuce Mix (pg 37). At least five varieties, certified-organic seed, chosen from among beets, chard, arugula, mustards, orachs, purslane, chervil and kales suitable for mesclun or braising. Exact components will vary according to availability. For a fully organic salad, from seed to table. ~470 seeds/g.

2993 ***A**: 1g, $2.50* ***B**: 4g, $6.00* ***C**: 14g, $11.00*
***D**: 28g, $20.00* ***E**: 112g, $65.00*

Mustard Mix A recently formulated mix of our beautiful mustards. Includes greens, purples, pinks, streaked and frilled varieties. ~450 seeds/g.

2996 ***A**: 1g, $2.20* ***B**: 4g, $4.50* ***C**: 14g, $9.00*
***D**: 28g, $14.00* ***E**: 112g, $40.00*

Braising Mix (40 days) A quick-growing mix of delicate and sturdy greens (and purples) full of flavor and body. Harvest from baby stage into maturity for a continuous mess of greens in your bowl. ~300 seeds/g.

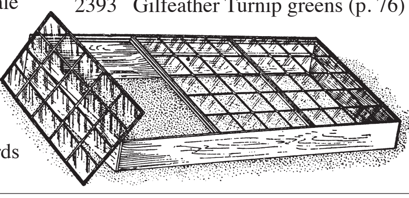
2998 ***A**: 1g, $2.50* ***B**: 4g, $6.00* ***C**: 14g, $11.00*
***D**: 28g, $20.00* ***E**: 112g, $65.00*

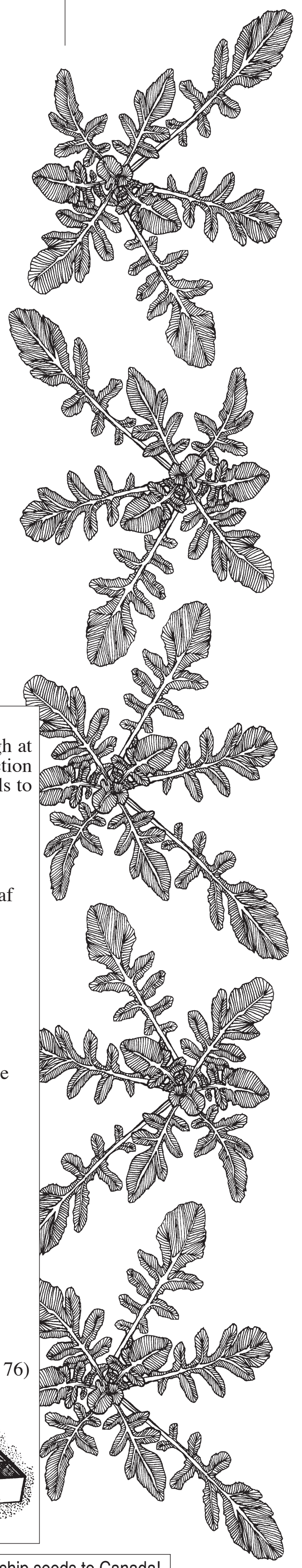
❆ Season-Extending Greens ❆

Greens marked with ❆ at the end of their descriptions are hardy through at least a portion of our winters in Zones 4 and 5, and probably with protection can survive the entire winter in Zone 6 and south. We continue our trials to add to this selection.

Cabbage pg 15
3391 Deadon Savoy Cabbage
3397 Wirosa Savoy Cabbage
3399 January King Cabbage
Greens: Arugula pg 28
3020 Astro Arugula
3021 Ice-Bred Arugula
3027 Sylvetta Arugula
Greens: Specialty pg 30
3050 Claytonia
3102 Verte de Cambrai Mache
Greens: Asian pg 32
3204 White Flowered Kailaan
3218 Senposai
3220 Tatsoi
3257 Chinese Thick-Stem
Greens: Mustards pg 33
3236 Golden Frill
3239 Pink Lettucy Gene Pool
3241 Spicy Green
3243 Green Wave
3245 Red Giant
Kale & Collards pp 35-36
3449 Scarlet Kale
3450 Dwarf Blue Kale
3452 Redbor Kale
3453 Winterbor Kale
3457 Rainbow Lacinato Kale
3458 Baltisk Kale
3459 Darkibor Kale
3460 Russian Frills Kale
3461 Red Russian Kale
3464 White Russian Kale
3441 Vates Collards
3442 Cascade Glaze Collards
3443 Champion Collards

Lettuce pp 37-42
2988 Winter Lettuce Mix
2791 Tango Looseleaf
2786 Red-Tinged Winter Looseleaf
2789 Merlot Looseleaf
2788 Oscarde Oakleaf
2781 Merlox Red Oak
2796 Lollo Rosso
2814 North Pole Butterhead
2816 Winter Marvel Butterhead
2849 Winter Density Romaine
2865 Rouge d'Hiver Romaine
2886 Winter Wonderland Romaine
Spinach pg 59
2510 Space
2512 Olympia
2538 Avon
2540 Bloomsdale
2555 Giant Winter
2558 Winter Bloomsdale
Parsley pg 84
3158 Gigante d'Italia Parsley
3166 Double Curled Parsley
3169 Krausa Parsley
3170 Dark Green Italian Parsley
Miscellany
3471 Kolibri Kohlrabi (p. 36)
2393 Gilfeather Turnip greens (p. 76)





ARUGULA *Eruca sativa*

~12,000-15,000 seeds/oz. Also known as Roquette or Rocket. Musky green and its piquant blossoms will spice up your salad.

Culture: Prefers cool temperatures; direct seed as early as possible in spring. Bolts readily in heat; much better as a fall crop or succession planted. Use row covers to discourage flea beetles. Let some spring plants grow to seed and be rewarded with a self-sown September and October patch that is delicious and has no flea beetle damage! A prime ingredient in tangy mesclun mixes. Frequent watering will reduce its pungency. Suitable for microgreens.

Astro - Organic (35 days mature, 21 days baby) After my first taste I was tempted to wisecrack that Astro is to real arugula as Astroturf is to real grass. But that would be grossly unfair. Yes, its pleasant tender texture and mild flavor might be a slight letdown for those of us who prefer our arugula more piquant. However, we found out when it debuted in our catalog that many people prefer this milder strain, making it a top seller. Selected for profuse basal growth, Astro rockets into dense clusters of thick lush leaves for baby-greens harvest. Leaf shapes are a mix of smooth-edged and lobed. Grows equally well during cool and hot seasons, Astro came to us highly recommended by our West Coast seed farmers for its dependability and yield. ❆ ①

3020 ***A**: 1/16oz, $2.60* ***B**: 1/8oz, $4.20*
***C**: 1/2oz, $6.00* ***D**: 1oz, $9.00*
***E**: 4oz, $16.00* ***K**: 1#, $55.00*

Ice-Bred - Organic (44 days) For my money, the best arugula to be found anywhere. Brett Grohsgal crossed two excellent European heirloom strains in 1989 and subsequently selected for cold hardiness and vigor, in the end breeding one tough cookie. Mid-ribs and whole leaves develop a lovely purple hue in winter freezes. Recovers in spring even if plant goes dormant under very cold conditions. Seedlings can stand drought, compete against weeds and don't require high soil fertility. They have been 1–2 days slower to bolt than other arugulas in my spring-sown plots. This is arugula with more bite, vigorous with complex full flavors. **Breeder royalties.** ❆ ①

3021 ***A**: 1/16oz, $2.80* ***B**: 1/8oz, $4.40*
***C**: 1/2oz, $7.00* ***D**: 1oz, $10.00*
***E**: 4oz, $32.00*

Arugula (47 days) The best-tasting and most bolt-resistant of the strains in our 2017 trials (**3021** Ice-Bred was not included in that test). Stood temperatures down to 14° double-covered under row cover. ②

Arugula

3022 ***A**: 1/16oz, $1.80* ***B**: 1/8oz, $2.50*
***C**: 1/2oz, $3.30* ***D**: 1oz, $4.40*
***E**: 4oz, $6.60* ***K**: 1#, $18.00*
***L**: 5#, $80.00*

Arugula - Organic (47 days) ①

3023 ***A**: 1/16oz, $2.00* ***B**: 1/8oz, $3.00*
***C**: 1/2oz, $3.80* ***D**: 1oz, $6.00*
***E**: 4oz, $11.00* ***K**: 1#, $34.00*
***L**: 5#, $156.00*

Sylvetta Wild Arugula (50 days mature, 21 days baby) *Diplotaxis erucoides* Also known as Rucola Selvatica, a must for extraordinary cold-season salads. A wild form of arugula, very deeply lobed dark green narrow leaves grow steadily, reaching 3" in 3 weeks, the perfect length for a 7" salad plate. Nutty, sweet, crisp and moderately spicy, Sylvetta grows foliage right to the rib base, no stem to trim. Please your restaurant accounts with this beautifully uniform arugula strain. Slower growing, smaller and more pungent than regular arugula. Out-competed 8 other commercial-production strains in our summer endurance trial. Highly recommended for market farmers and gardeners alike. Eliot Coleman lists it as one of his winter staples in *The Winter Harvest Handbook*. ~110,000 seeds/oz. ❆ ②

3027 ***A**: 1/16oz, $2.20* ***B**: 1/8oz, $3.30*
***C**: 1/2oz, $8.00* ***D**: 1oz, $12.00*
***E**: 4oz, $38.00* ***K**: 1#, $130.00*

CHARD *Beta vulgaris* (cicla group)

~600–2,500 seeds/oz.

Salzer's 1915 catalog opines, "Swiss chard produces more food for the table than almost any other vegetable and it also requires less care; it yields a constant crop from July to winter."

Culture: Hardy and easy to grow. Same species as beets. Plants will grow quite large. Space according to use—can be direct-seeded 2" apart for baby-leaf harvest; thin to 12–16" apart for large leaves. Soften thick ribs of chard, beets and other greens by braising. Also used for microgreens.

Minimum germination temperature 40°, optimum range 50–85°.

Fordhook Giant (50 days) Broad white stems, leaves dark green and savoyed with white veins. The standard variety, introduced by Burpee in 1934 has developed a fair amount of variability in recent years. ⑤

3031 ***A***: *1/16oz, $1.80* ***B***: *1/8oz, $2.40* ***C***: *1/2oz, $2.80*
D: *1oz, $4.30* ***E***: *4oz, $7.50* ***K***: *1#, $19.00*
L: *5#, $80.00*

Argentata (55 days) Vigorous long-standing 2–3' plants tolerate a wide variety of weather conditions. Broad silvery-white midribs with a crispy sweet succulence and none of the oxalic aftertaste so common in other chards. The deep green savoyed leaves with a mild clean flavor make a great substitute for spinach in omelettes, pasta dishes and casseroles. ②

3033 ***A***: *1/16oz, $2.10* ***B***: *1/8oz, $3.00* ***C***: *1/2oz, $6.00*
D: *1oz, $8.00* ***E***: *4oz, $22.00* ***K***: *1#, $72.00*

Perpetual Spinach or **Leaf Beet** (55 days) Thanks to Pam Dawling for suggesting we add this member of the chard family. Leaf beet should be cultured like any other chard variety. It looks similar to other swiss chards, but its stems are thinner and its exceptionally tender leaves are smoother, not puckered. It tastes unlike any other chard, imparting a spinach-like flavor that lingers pleasantly. Unlike spinach, Perpetual lasts through summer into fall as it withstands light and moderate frosts. Production from June to October, reports one central-Vermont grower. ②

3034 ***A***: *1/16oz, $1.70* ***B***: *1/8oz, $2.40* ***C***: *1/2oz, $3.60*
D: *1oz, $6.00* ***E***: *4oz, $10.00* ***K***: *1#, $28.00*

Bali (55 days for bunching, 35–40 days baby leaf) Bali chard is a spectrum leap from traditional rhubarb chard even at baby stage—it's like putting little red lightning bolts in your salad mix. With a very dark lush green fully savoyed leaf, the veins and stalk contrast like fiery lava. Mouthfeel is juicy and succulent; flavor very mild. No odd bolting or wilting, no beet-rooted rejects or wiggly weird stems. Excellent regrowth for multiple harvests. This is red-chard perfection from Bejo Seeds. ④

3035 ***A***: *1/16oz, $2.20* ***B***: *1/8oz, $3.60* ***C***: *1/2oz, $5.60*
D: *1oz, $8.00* ***E***: *4oz, $15.00* ***K***: *1#, $38.00*

Bright Lights (56 days) A best seller and 1998 AAS winner from Johnny's Selected Seeds. Bright Lights bathes stems, midribs and secondary veins in a panoply of gold, yellow, orange, pink, intermediate pastels and dazzling stripes. The tenderness of its dark green to bronze leaves and the mildness of its chard flavor impresses all who try it. Young seedlings respond to cut-and-come-again culture, ideal for mesclun. Developed by John Eaton of Lower Hutt, New Zealand, who found the parent plants, red and yellow, in a small home garden in 1977 and crossed them to standard green and white varieties, selecting for color and flavor over the next fifteen years. Johnny's worked the following years to preserve the strength and range of the individual colors. ③

3036 ***A***: *1/16oz, $2.40* ***B***: *1/8oz, $3.30* ***C***: *1/2oz, $5.00*
D: *1oz, $7.00* ***E***: *4oz, $20.00* ***K***: *1#, $68.00*

Golden - Organic (56 days) The gold standard in chard and a first-rate ornamental edible. A once rare color in chard, this strain from Frank Morton always stands out in our grow-outs for its taste as well as its color. Large light green semi-savoyed leaves contrast with the bright yellow stems and veins. Becomes strikingly luminescent as the plant matures. And the taste lacks the metallic qualities of some chard. This heirloom was developed in the 1830s when it was originally known as Chilean beet. ①

3038 ***A***: *1/16oz, $2.50* ***B***: *1/8oz, $4.00* ***C***: *1/2oz, $7.00*
D: *1oz, $10.00* ***E***: *4oz, $33.00* ***K***: *1#, $120.00*

Silverado - Organic (56 full size; 30 days baby leaf) Mainers sure do love their Swiss chard: this easy-to-grow early crop brightens our chilly drear spring and keeps producing the whole season long. Silverado, with its glossy deep green crinkly leaves and bright white stems is much like Fordhook, except it is more compact, more deeply savoyed, more uniform and with a narrower stem. It is also slower to grow to its full 16" height and slower to bolt, which gives it a long harvest window. Excellent taste. Very cold tolerant. ⑤ **NEW!**

3039 ***A***: *1/16oz, $2.70* ***B***: *1/8oz, $5.00* ***C***: *1/2oz, $10.00*
D: *1oz, $16.00* ***E***: *4oz, $50.00*

Red Rhubarb - Organic (59 days) Deep crimson stalks, dark green leaves. Very hardy. Beautiful for edible landscapes. Heirloom from Europe goes back to 1857. Shows some variability. ⑤

3041 ***A***: *1/16oz, $2.00* ***B***: *1/8oz, $2.80* ***C***: *1/2oz, $4.20*
D: *1oz, $5.50* ***E***: *4oz, $16.00* ***K***: *1#, $60.00*
L: *5#, $280.00*

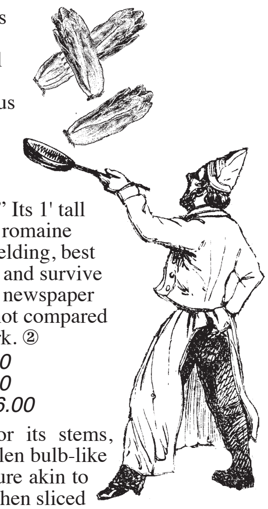
CHICORY *Cichorium intybus*

~500-600 seeds/g.

Culture: Performs best in cool weather, spring or fall. Direct seed, thin to 1–2' apart.

Italiko Rosso (60 days) Savory Italian chicory often mistaken for a red dandelion. Nip off the deeply toothed red-veined leaves for a delectable treat. Ideal for braising, good in spicy mesclun, it imparts its mild dandelion flavor. Moderately tangy in cool weather, it can be somewhat bitter in summer's heat. ②

3047 ***A***: *0.5g, $2.20* ***B***: *1g, $3.40* ***C***: *2g, $5.00*
D: *8g, $7.00* ***E***: *16g, $10.00* ***K***: *32g, $14.00*



Pan di Zucchero (80 days) The name means 'sugar loaf' in Italian. If you associate chicory with bitterness, heirloom Pan di Zucchero will surprise you. Beedy Parker enthused in late August: "The seed was extraordinarily vigorous so I put it out in any stray place in the spring and have been eating it for weeks now; the white inner core as romaine lettuce and the outer tough darker green leaves in stir fry.… resists weather extremes, drought in this case." Its 1' tall large tight light green leaves are shaped like a romaine lettuce crossed with a nappa cabbage. High yielding, best as a fall crop. Will store well for three months and survive for four if you wrap it tightly in slightly damp newspaper and keep it just above freezing. Lucie Arbuthnot compared it to witloof chicory, but without the extra work. ②

3048 ***A***: *0.5g, $2.20* ***B***: *1g, $3.40*
C: *2g, $5.00* ***D***: *8g, $7.00*
E: *16g, $10.00* ***K***: *32g, $16.00*

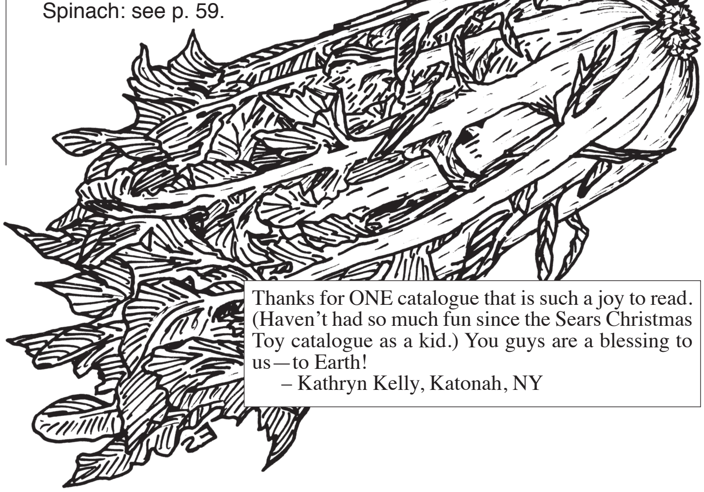
Puntarelle (80 days) A chicory grown for its stems, which join together at the base to form a swollen bulb-like vegetable. The sweet hollow stalks, with texture akin to celery, are harvested when young and tender, then sliced lengthwise into spears and soaked in ice water, causing them to curl and become juicier. Make the salad called Puntarelle alla Romana by dressing them raw with anchovies, garlic, red wine and olive oil, which brings out their flavors: hints of arugula spiciness combined with fennel overtones. The frilly leaves can be stripped off and cooked separately, or the stems can be cooked as well and served with such traditional Italian fare as beans and pasta. Transplant or direct seed. Best grown in fall and harvested before frost. ②

3049 ***A***: *1g, $2.30* ***B***: *2g, $3.40* ***C***: *4g, $5.00*
D: *16g, $12.00* ***E***: *32g, $20.00*

Chervil: see p. 81.

Parsley: see p. 84.

Spinach: see p. 59.



Thanks for ONE catalogue that is such a joy to read. (Haven't had so much fun since the Sears Christmas Toy catalogue as a kid.) You guys are a blessing to us—to Earth!
– Kathryn Kelly, Katonah, NY

ENDIVE *Cichorium endivia*

~20,000-22,000 seeds/oz.

Très Fine Maraîchère Olesh - Organic (42 days) Anne Elder reported this 19th-century French heirloom has changed her CSA members' minds about endive. "Wow, an endive that is sweet. Almost unheard of." Large frizzy endive with very fine ribs suitable for late spring and early summer harvests. Holds well in the field. Known to chefs as frisée. ③

3063 ***A***: *1/16oz, $3.50* ***B***: *1/8oz, $6.00* ***C***: *1/2oz, $18.00*
D: *1oz, $33.00*

Speckled Friz Chickendiva - Organic (70-90 days) *C. intybus* x *C. endivia* Unusual chic greens from master breeder Frank Morton. Morton crossed Wild Garden chicories with frisée, curly endive and escarole to develop this colorful flock of individuals, who went from the swimming pool to the opera house when we learned that our previous moniker Chickendive was incorrect. More tender than chicory, more cold hardy and ornamental than endive. A variable gene-pool with some plants speckled, some plants open, others semi-headed, others with full heads. Enjoy a broad range of textures and flavors spiked with a hot peppery tang. The MOFGA fairgrounds patch of Chickendiva, which garden coordinator Jack Kertesz finds "cheery and attractive," has survived and self-sowed for many years without any replanting or much work. Sow in mid-late summer for autumn and winter production. Space 1' apart in rows 1–2' apart. Ω ①

3075 ***A***: *1/16oz, $3.20*

Full Heart Batavian (85 days) Also known as Escarole. Smooth broad dark green outer leaves with creamy yellow closely bunched center leaves that Fearing Burr described as thick and fleshy in his 1863 Field and Garden Vegetables. Lauded by William Woys Weaver as a good salad green, not bitter. Especially good as a fall crop; tolerates frost under row cover. Best cooked—one Italian tradition is to braise with white beans, also makes a savory escarole and leek pie. ②

3092 ***A***: *1/16oz, $1.80* ***B***: *1/8oz, $2.60* ***C***: *1/2oz, $3.80*
D: *1oz, $5.00* ***E***: *4oz, $9.00* ***K***: *1#, $22.00*

RADICCHIO *Cichorium intybus*

~600-1000 seeds/g. Seed not pelleted.

Culture: Culture like lettuce; do not allow to dry out. They are mature when heads form in the center. If you try direct-seeding, watch out for flea beetles. Fall crops make the largest heads. Very tolerant of fall frosts down to the 20s.

Wonderful in salads or braised, these radicchios are easy to raise from transplants although they have not yet been refined to absolute uniformity. Occasional plants still bolt unpredictably. The outer leaves are bitter; the edible centers are an acquired taste, retaining some bitterness. The folks at Adaptive Seeds suggest that steeping the leaves in ice water dissolves some of the bitterness.

Days to maturity are from direct seeding.

Fiero (66 days) F-1 hybrid. Beautiful elongated upright radicchio. Deeply ribbed leaves with a branching pattern; the whitish veins blush green along the margins and branches, creating a spectacular color contrast with the purplish background. Early and delicious, a reliable header. ④

3187 ***A***: *0.05g, $3.60* ***B***: *0.1g, $5.00* ***C***: *0.2g, $8.00*
D: *0.4g, $15.00* ***E***: *1.6g, $48.00* ***K***: *3.2g, $80.00*

Indigo (69 days) F-1 hybrid. We've never seen a radicchio produce such consistently large tight heads of extraordinary rich interior color. Nikos rated it one of the sweetest red radicchios she's ever tasted. Tipburn resistant. ④

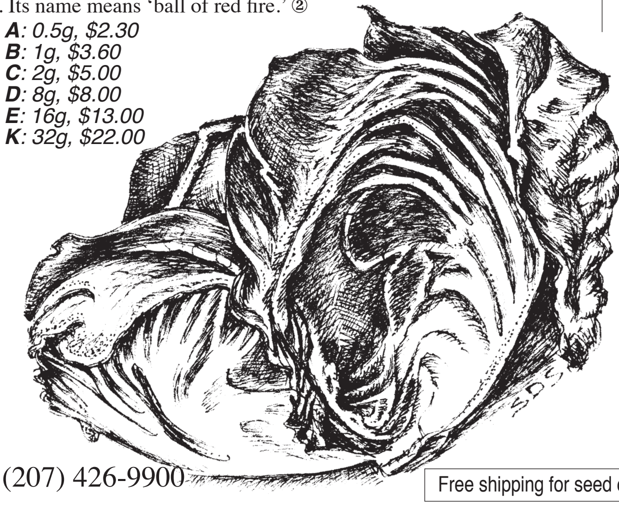
3188 ***A***: *0.05g, $3.40* ***B***: *0.1g, $5.00* ***C***: *0.2g, $9.00*
D: *0.4g, $13.00* ***E***: *1.6g, $44.00* ***K***: *3.2g, $78.00*

Radicchio di Treviso (80 days) Shaped almost like a small romaine lettuce, turns from green to variegated dark burgundy with lovely white veining as the nights grow cold. As its narrow leaves bunch like a romaine, you can bind them with a ribbon to make a firmer "head." Best for fall crops. ②

3189 ***A***: *0.5g, $2.30* ***B***: *1g, $3.60* ***C***: *2g, $5.00*
D: *8g, $8.00* ***E***: *16g, $13.00* ***K***: *32g, $22.00*

Palla di Fuoco Rossa (85 days) Round-headed Chioggia-type from Italy. Palla di Fuoco impressed us with its deep burgundy heads with good uniformity. Its name means 'ball of red fire.' ②

3190 ***A***: *0.5g, $2.30*
B: *1g, $3.60*
C: *2g, $5.00*
D: *8g, $8.00*
E: *16g, $13.00*
K: *32g, $22.00*



SPECIALTY GREENS

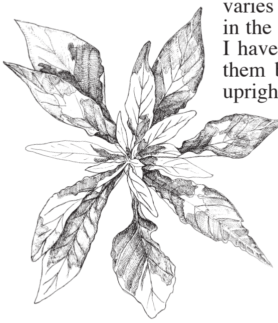
AMARANTH *Amaranthus tricolor*

Amaranth was one of the Aztecs' five principal crops. They ground seeds into flour and prepared sauces with the leaves, rich in vitamins and minerals.

For grain amaranth see **p. 27**; for ornamental amaranth see **p. 88**.

Red Calaloo (120 days) Calaloo is a Caribbean stew that has many local variations, as does the name of the greens usually used in the dish, which also varies from island to island. This type is used in Jamaica, in the namesake dish as well as in many others. Although I have never been a fan of amaranth greens, considering them barely edible forage, the tricolor blaze on the tall upright Calaloo in August, more red than Hopi Red Dye, wowed me so I was induced to eat a bit. Double Wow! It was soft smooth easy eating—and that was raw, straight out of the field. Grow it as an ornamental and then eat it. Not all plants are red at the seedling stage, but they eventually turn. Prefers warm conditions. ~1250 seeds/g. ③

4301 ***A***: *1g, $2.10*
B: *4g, $4.30*
C: *16g, $10.00*
D: *80g, $23.00*

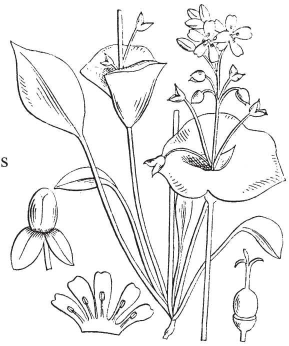


CLAYTONIA *Montia perfoliata*

~160 seeds/g. Direct seed in spring, 1/2" apart. Thin to 3" apart. Responds to cut-and-come-again culture and tolerates moderate frosts. For best quality, make at least one succession planting.

Claytonia (40 days) Also known as **Winter Purslane** and **Miner's Lettuce**, it was the '49ers green of choice, rich in calcium and vitamin C. Claytonia's small heart-shaped leaves have a mild but succulent taste that we find attractive. We add it regularly to our mesclun. Barbara Damrosch says it "re-grows like crazy so you can get cut after cut off the same plant." ❄ ③

3050 ***A***: *0.5g, $2.60*
B: *1g, $3.60*
C: *2g, $5.80*
D: *8g, $12.00*
E: *16g, $20.00*
K: *32g, $32.00*



CRESS *Lepidium sativum*

~9000-10,000 seeds/oz. Cress is great for quick spicy microgreens. Also called **Garden Cress** to distinguish it from Watercress.

Curly Cress (20 days) *We are dropping Curly* in favor of the more-popular Wrinkled Crinkled.

Wrinkled Crinkled Crumpled Cress - Organic (30 days)

Salad green that will impress.
Mix some lettuce, add some dress.
Stir it up, sit down and fress.
Banish cares and summer stress.

With a designer's eye, a discerning palate, and a breeder's deft touch, Frank Morton crossed Persian and curled cresses to create a gene pool, from which he selected Wrinkled Crinkled. Broad leaves are extremely ruffled and wrinkled along the margins and savoyed in the middle. A fluffy spicy addition to your salad mix, imparting a tang, plus an irresistible sweetness. Can be bunched for market. **OSSI** Ω ①

3056 ***A***: *1/16oz, $2.30* ***B***: *1/8oz, $3.60* ***C***: *1/2oz, $6.50*
D: *1oz, $9.00* ***E***: *4oz, $22.00* ***K***: *1#, $80.00*

MÂCHE *Valerianella locusta*

~10,000-18,000 seeds/oz. Also known as Corn Salad, Lamb's Lettuce, Field Salad and Fetticus, mâche has a unique nutty flavor.

Culture: Mâche seed requires 10–14 days to germinate. Never start in soil temperatures above 68˚ as excessive warmth triggers seed dormancy.

Verte de Cambrai (45 days) A small-seeded small-leaved strain that performs especially well in cool or cold conditions and is the best kind for overwintering. Susan Coombs of Newton, MA, reported it happily growing in her garden in February. May be the same variety Thomas Jefferson grew in 1810 under the name Candia. ❄ ③

3102 ***A***: *1/16oz, $2.00* ***B***: *1/8oz, $3.20* ***C***: *1/2oz, $4.40*
D: *1oz, $6.00* ***E***: *4oz, $16.00* ***K***: *1#, $42.00*

Large-Leaf Round (60 days) Vigorous large-leaf type is suitable for sowing in spring for an early summer harvest. Bryan O'Hara says "always a favorite in winter salads." Weaver traces this strain back to the 1840s, but for centuries prior to that corn salad was gathered in the wild. ②

3114 ***A***: *1/16oz, $2.40* ***B***: *1/8oz, $3.00* ***C***: *1/2oz, $4.50*
D: *1oz, $6.00* ***E***: *4oz, $11.00* ***K***: *1#, $30.00*

NEW ZEALAND SPINACH *Tetragonia tetragonioides*

Culture: Soak the nut-like seeds before sowing to speed and improve germination. Be patient and don't give up too soon. Irrigate frequently and pick often to keep leaves tender and succulent and to avoid yellowing. Will withstand frosts to the low 20s.

New Zealand Spinach (52 days) Captain Cook's voyagers noted it in 1770 on the shores of Queen Charlotte's Sound in New Zealand. Doesn't look like a true spinach or taste like one, though some find it an acceptable substitute because it stands through the hot summer when true spinach bolts. Cooks have discovered it is a good green baked, especially in lasagna. Only a few plants will fill in your patch because *Tetragonia* sprawls. ~350 seeds/oz. ②

2592 *A: 1/4oz, $2.20*
B: 1/2oz, $3.00
C: 1oz, $5.00
D: 4oz, $12.00
E: 1#, $23.00

ORACH *Atriplex hortensis* ~4000-7000 seeds/oz.

Culture: Thrives in cool weather and should be direct-sown as soon as the ground can be worked. Can be pinched back to encourage production and retard bolting.

Key salad ingredient once called the Cabbage of Love, also known as Mountain Spinach, popular in the 19th century then long forgotten.

Purple Orach - Organic (38 days) Beautiful red-purple spinach-shaped leaves have a mild flavor. Good for microgreens, salads and cooking. ①

3148 *A: 1/16oz, $3.60* *B: 1/8oz, $6.30* *C: 1/2oz, $12.00*
D: 1oz, $20.00 *E: 4oz, $72.00*

Aurora Orach Mix - Organic (38 days) In his Wild Garden Seed catalog, originator Frank Morton calls it "mountain spinach for merry pranksters." This mix of golden, dark purple, purple and carmine day-glo will give orach a whole new aura in your garden and salad mixes. As Morton says, "Exotic forms and high-contrast high-intensity color sells seed, and good taste and easy culture sells that seed year after year." **OSSI** Ω ①

open source seed initiative

3150 *A: 1/16oz, $2.80* *B: 1/8oz, $4.80* *C: 1/2oz, $14.00*
D: 1oz, $26.00 *E: 4oz, $96.00*

PURSLANE *Portulaca oleracea* var. *sativa*

Culture: Direct seed in spring, after danger of frost. Thin to 5" apart. Can be cut; will regenerate. We recommend a succession planting to maximize tenderness.

Its Latin name means 'milk-bearing vegetable.' Purslane leaves have more vitamin C than spinach and are rich in omega-3 fatty acids and antioxidants.

Golden - Organic (50 days) Its wild relative, the common garden weed, was a favorite edible of both Thoreau and Gandhi. This domesticated strain is more erect than the wilding, and not crawly. Golden has a succulent texture with a mildly acerbic flavor that makes it an ideal addition to salad mixes. Golden-green leaves patterned like a cross. ~2000 seeds/g. ①

3182 *A: 0.5g, $2.60* *B: 1g, $4.00* *C: 2g, $6.00*
D: 8g, $11.00 *E: 16g, $18.00* *K: 32g, $32.00*

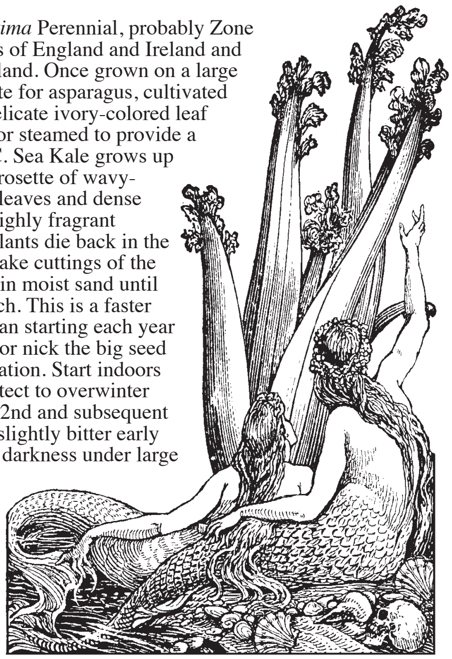
PERENNIAL GREENS

Caucasian Mountain Spinach - ECO *Hablitzia tamnoides* Perennial, Zones 3-6. The surprise sensation of our 2015 catalog, *Hablitzia*'s success motivated us to ramp up our perennial selection. Too new to have an agreed-upon common name, this plant has everything else. Originating in the Caucasus, it is a very hardy perennial, growing 6–9' long for 2–3 months in the very early spring when few other edible greens have surfaced. It's also tasty: both early shoots and subsequent leaves make a delicious and tender spinach-like vegetable without any bitterness. Moreover, it's beautiful, was originally introduced into Sweden around 1870 as an attractive vine to screen manor houses with its heart-shaped leaves. And, finally, though it is best grown in sun to maximize its productivity, it will also do well in its native habitat, the understory of temperate forests. Best germinated with stratification, and slow-growing in the first year. ~1,360 seeds/g. ①

2590 *A: 0.1g, $3.10* *B: 0.2g, $4.80* *C: 0.4g, $8.00*
D: 1g, $12.00 *E: 4g, $40.00*

Good King Henry - ECO *Blitum bonus-henricus* Perennial, Zone 3-9, also known as Lincolnshire Spinach. Used as a potherb, one of the first greens of spring and one of the last of fall. Harvest the dark green arrow-shaped leaves and use like spinach. Ancient plant used in festive meals, in meat dishes and as a side dish, very popular in Europe before it was supplanted by spinach. The name comes from haganrich, literally 'king of the hedge,' supposedly a goose-footed gremlin with that helps around the house. (I could use one of those!) Prefers rich soil in semi-shady areas, though will grow in full sun. Stratify seeds: fluctuation of high and low temperatures aids germination. Direct sow in spring or fall or transplant very young seedlings in spring. Once established the plants don't like transplanting. Requires a year of growth before plants can be harvested. Another name for this plant is Fat Hen, as stalks grow to 2 1/2' if left uncut, yielding a plethora of seeds beloved by chickens. ~160seeds/g. ①

3096 *A: 0.5g, $2.60* *B: 1g, $4.00* *C: 2g, $6.30*
D: 8g, $15.00 *E: 16g, $24.00*

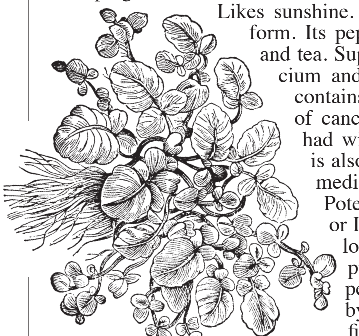


Sea Kale *Crambe maritima* Perennial, probably Zone 5. Native to the seashores of England and Ireland and popular in Victorian England. Once grown on a large scale as a winter substitute for asparagus, cultivated for its blanched tender delicate ivory-colored leaf stalks that can be boiled or steamed to provide a good source of vitamin C. Sea Kale grows up to 3' forming a beautiful rosette of wavy-edged thick silvery-grey leaves and dense racemes of small white highly fragrant flowers in midsummer. Plants die back in the winter, the ideal time to take cuttings of the fleshy side-roots to store in moist sand until setting out in soil in March. This is a faster way to generate plants than starting each year from seed. Scarify seeds or nick the big seed casings for better germination. Start indoors like broccoli, set out, protect to overwinter and begin harvesting the 2nd and subsequent years. Blanch the tender slightly bitter early spring shoots in absolute darkness under large pots, and harvest when the stems reach 3–10". Exposed to light, in its natural state Sea Kale is bitter and inedible. After blanching, allow plants to rebuild their strength for the following season. ~35 seeds/g. ③

3099 *A: 1g, $3.20* *B: 2g, $5.00* *C: 4g, $9.00*
D: 8g, $15.00 *E: 16g, $27.00*

Broad-Leaved Sorrel (60 days) *Rumex acetosa* Perennial, Zone 3. Often known as Sour Grass. Likes cool weather, acid soil, partial shade and plenty of water to retard bolting. In spring it rapidly shoots up its thick sword-shaped lemony-flavored leaves. If left untouched will grow up to 18" and make seed stalks. Use for microgreens or snip the leaves while they are still young and tender. Keep cutting and never let them grow big and coarse or go to seed. If they get away, mow the plant close to the ground and it will regenerate. Or treat as a biennial by planting a new patch every year and rotating the old out of production. Young leaves add tang to soups and salads and provide a welcome spring tonic. Tony Ricci of Green Heron Farm in PA recommends grilling fish wrapped in sorrel leaves surrounded by foil to impart an herbal-lemon flavor to the fish. ~30,000 seeds/oz. ②

3192 *A: 1/16oz, $2.20* *B: 1/8oz, $3.50* *C: 1/2oz, $5.00*
D: 1oz, $7.00 *E: 4oz, $16.00* *K: 1#, $50.00*



Avona Watercress - Organic (60 days) *Nasturtium officinale* Perennial, Zone 4, native to Europe. Start seeds indoors and transplant to cold frame, keeping watered, or direct sow in soggy stream bank. Also good in pots. Likes sunshine. Keep picked; it gets bitter once flowers form. Its peppery taste enhances many a salad, soup and tea. Super-nutritious, it is high in vitamin C, calcium and iron. According to UConn researchers, contains a compound that inhibits numerous types of cancers. Since ancient China and Egypt, has had widespread culinary and medicinal uses. It is also a candidate for possible use in phyto-remediation or wastewater treatment operations. Potentially invasive, and we cannot ship to CT or IL where it is banned. In other warm moist locations, keep a close eye on plantings to prevent its unwanted spread. Its many uses perfectly illustrate the conundrum posed by potentially invasive plants: how do we find ways to control them and harness their many benefits instead of banning them? ④

3059 *A: 1/16oz, $2.40* *B: 1/8oz, $4.00* *C: 1/2oz, $11.00*
D: 1oz, $18.00 *E: 4oz, $58.00*

Turkish Rocket - ECO *Bunias orientalis* Perennial, Zones 4-8. A few years ago, defeated by the resident flea beetle population. I gave up on growing brassicas in my garden. But when Aaron Parker brought Turkish Rocket seeds to the 2017 Seed Swap and Scionwood Exchange, I picked up a few anyway, tempted by the promise of direct-seeded perennial vegetables and by Aaron's reputation for growing cool plants. To my delight, the flea beetles turned up their noses at this new arrival, allowing ongoing harvest of tender spicy mustard greens and florets for stir-frying throughout the month of May. Larger leaves are harvestable through the growing season, with another flush of new growth starting in mid to late August. In the perennial garden, these plants stick up for themselves as attractive mounds of bright pointed leaves that shade out weeds. Drought-tolerant with a deep taproot that brings up moisture and minerals, this Rocket attracts beneficial insects and can be used as animal fodder. Considered invasive in some locales, this doesn't seem to be a problem in Maine. However, attentive deadheading will eliminate that possibility. *Not for sale to Wisconsin*. ①

3195 *A: 1g, $4.00* *B: 4g, $12.00* *C: 14g, $32.00*
D: 28g, $55.00

ASIAN GREENS

Brassica spp.

All Asian greens are **open-pollinated** except where noted.

Diseases:

ALTS	Alternaria Leaf Spot	BSR	Bacterial Soft Rot
BL	Black Leg	DM	Downy Mildew
BR	Black Rot		

Note: Due to Black Leg quarantine issued by Oregon, we cannot ship Asian brassica greens packets larger than 1/2 oz (14g) into the Willamette Valley except those that have tested negative for Black Leg and Black Rot. Our information at press time is in the descriptions here; please check our website for updates.

Days to maturity are from seeding. From transplant, subtract 20 days.

Garland Serrated Chrysanthemum (40 days) *C. coronarium* Grown for its aromatic greens with an unusual taste appreciated by devotees. This strain was superior to other Shungiku varieties in our trial. Its 3" flowers (buttercup yellow, edged in white with serrated tips) were larger and better for the edible flower market and its small grey-green serrated leaves had distinctly more chrysanthemum taste. It also makes a great yellow dye plant. The Japanese use it in hearty one-pot winter stews known as oden. Also good in salads, soups and stir-fries. Plant thickly in early spring (or summer for a fall crop) and harvest green leaves when stems are 4–8" tall, before buds appear. Sometimes self-sows. ~15,000 seeds/oz. ③

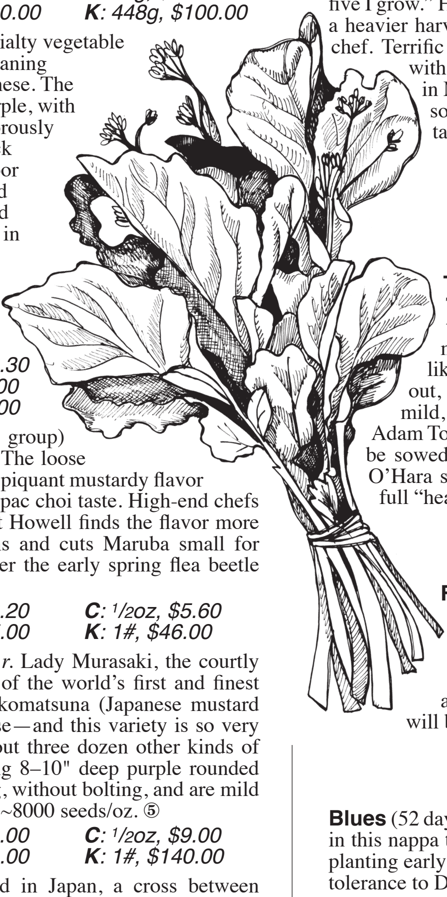
3203 **A**: 1/16oz, $2.20 **B**: 1/8oz, $3.30 **C**: 1/2oz, $5.00
D: 1oz, $7.00 **E**: 4oz, $20.00 **K**: 1#, $75.00

White Flowered Kailaan (45-60 days) *B. oleracea* F-1 hybrid. Also known as Chinese Broccoli, Chinese Kale or Gai Lan. Grown for its succulent stalks and leaves, it sends up tender 8" shoots topped with elegant little loose florettes. Once the main stalk is cut, it coppices into many secondary shoots. Has versatility and flavor similar to broccoli, excellent steamed or in stir-fries. Heat and cold tolerant, thrives in a wide range of climates and can be planted in late spring, late summer or early fall. ~250 seeds/g. ❄ ⑤

3204 **A**: 2g, $2.50 **B**: 4g, $3.80 **C**: 14g, $9.00
D: 28g, $11.00 **E**: 112g, $30.00 **K**: 448g, $100.00

Hon Tsai Tai (37 days) *B. rapa* Chinese specialty vegetable also known as Purple-flowered Choy Sum, meaning 'vegetable heart' or 'flowering stem' in Cantonese. The flower stalks, leaf stalks and buds are deep purple, with color intensifying in cold weather. Grows vigorously in fertile soil, producing up to forty pencil-thick flowering shoots, though much skimpier on poor ground. Shoots and leaves have a pleasant mild mustardy flavor good for stir-fries, braising and soups. Also good for microgreens. Grows best in cool weather, ideal when sown in late summer for a fall crop or in fall for an early winter crop in warmer climates. Hardy to 23°. May bolt prematurely in midsummer heat. ~10,000 seeds/oz. ⑤

3205 **A**: 1/16oz, $2.20 **B**: 1/8oz, $3.30
C: 1/2oz, $5.00 **D**: 1oz, $7.00
E: 4oz, $18.00 **K**: 1#, $55.00



Maruba Santoh (35 days) *B. r.* (pekinensis group) With Maruba you get four vegetables in one. The loose round vibrant chartreuse leaves provide a mild piquant mustardy flavor while the flat white stems impart a juicy crisp pac choi taste. High-end chefs like to use the blossoms. Market grower Scott Howell finds the flavor more subtle and complex than that of other greens and cuts Maruba small for his mesclun. Fairly bolt tolerant, so plant after the early spring flea beetle invasion subsides. ~8,000 seeds/oz. ⑤

3209 **A**: 1/16oz, $2.00 **B**: 1/8oz, $3.20 **C**: 1/2oz, $5.60
D: 1oz, $6.30 **E**: 4oz, $15.00 **K**: 1#, $46.00

Lady Murasaki Komatsuna (45 days) *B. r.* Lady Murasaki, the courtly author of The Tale of Genji, considered one of the world's first and finest novels, is an apt namesake for this elegant komatsuna (Japanese mustard spinach). *Murasaki* means 'purple' in Japanese—and this variety is so very purple that it lured me through a field of about three dozen other kinds of greens to get a closer look. The slow-growing 8–10" deep purple rounded leaves stand as beautifully as a lady-in-waiting, without bolting, and are mild and delectable all the way through the season. ~8000 seeds/oz. ⑤

3216 **A**: 1/16oz, $2.60 **B**: 1/8oz, $4.00 **C**: 1/2oz, $9.00
D: 1oz, $13.00 **E**: 4oz, $44.00 **K**: 1#, $140.00

Senposai (40 days) F-1 hybrid. Developed in Japan, a cross between komatsuna (Japanese mustard spinach) and regular cabbage. "Customers buy it once because it looks absolutely stunning, then they buy it again because it is extremely delicious. Absurdly productive and easy to grow," raves John Eisenstein of Port Royal, PA. Round medium-green leaves are wonderful in okonomiyaki or for braising. A spring sowing will stand the entire summer (even through drought) and well into fall before bolting. Can be overwintered in warmer climes or used for spring greenhouse salad production because it grows so fast. Open plant habit needs 12–18" spacing. ~6500 seeds/oz. ❄ ⑤

3218 **A**: 1/16oz, $2.40 **B**: 1/8oz, $3.60 **C**: 1/2oz, $6.00
D: 1oz, $10.00 **E**: 4oz, $26.00 **K**: 1#, $88.00

Tatsoi (45 days) *B. r.* (narinosa group) What grows quickly, can be seeded as late as August, withstands frost and is, according to Orlando Sentinel columnist Sherry Boas, "just as versatile as spinach"? Yes, Tatsoi, also known as Tah Tsai. Anne Elder has picked it all fall into December even after a snow melt. Remains sweet and unburnt by cold during mild winters. "A dream come true for snow-dwelling beings craving greens." Spoon-shaped thick dark green leaves make beautiful compact rosettes with mild brassica flavor. Make great microgreens. Also good in place of lettuce in sandwiches, stir-fried, in quiche, lasagna or soup. Will come back when cut. An essential ingredient in our salads and mesclun. ~13,600 seeds/oz.

Tatsoi Tested negative for BR and BL. ⑤

3220 **A**: 1/16oz, $2.30 **B**: 1/8oz, $3.30 **C**: 1/2oz, $5.00
D: 1oz, $7.00 **E**: 4oz, $16.00 **K**: 1#, $56.00
L: 5#, $260.00

Tatsoi - Organic ①

3221 **A**: 1/16oz, $2.50 **B**: 1/8oz, $4.00 **C**: 1/2oz, $6.00
D: 1oz, $8.00 **E**: 4oz, $25.00 **K**: 1#, $90.00

Yokatta-Na (21 days baby; 45 days mature) *B. r.* (narinosa group) F-1 hybrid. "What a surprise! The heads grow well larger than a foot tall and we ate the 2nd growth heads whole like young bok choy," reported the Wolperts in Belington, WV. Quick-growing and versatile, tolerating both heat and cold, Yokatta can extend your season at either end, while simultaneously broadening your culinary range. Use it either raw in salad mixes or cooked in stir-fries. The deep green tender leaves, though flavorful, lack the mustard "bite" found in so many Asian greens and can be harvested as a cut-and-come-again crop or at maturity. ④

3223 **A**: 1/16oz, $2.60 **B**: 1/8oz, $4.00 **C**: 1/2oz, $7.50
D: 1oz, $12.00 **E**: 4oz, $34.00

Even' Star Chinese Thick-Stem - Organic (47 days mesclun; 62 days full size) *B. juncea*. When farmer-breeder Brett Grohsgal passed out samples of his winter-hardy greens at two workshops at a PASA conference, this green mustard was the hands-down favorite. Grohsgal believes this mustard has the "best balance between sweet succulence and moderate pungency of any of the five I grow." He called it Thick-Stem in honor of its enlarged midribs that give a heavier harvest for the farmer and better mass for the restaurant or home chef. Terrific for mesclun and an excellent cut-and-come-again performer with fast regrowth. Grohsgal has bred it for 100% freeze tolerance in Maryland; it survived our overwinter test in Maine. Needs good soil fertility, prefers clay or loam to sand, dislikes drought but can take wet. **Breeder royalties.** ❄ ①

3257 **A**: 1/16oz, $2.80 **B**: 1/8oz, $5.00
C: 1/2oz, $16.00 **D**: 1oz, $28.00
E: 4oz, $58.00

CHINESE CABBAGE *B. rapa*

~7000–9000 seeds/oz.

Tokyo Bekana - Organic (20 days baby, 45 days full size) These baby Chinese cabbages may be bunched for market or their ruffled curled leaves cut to add loft and weight to salad mixes. With pale green color and lettucy leaves they look almost like lettuce. Bekana will regrow for multiple cuttings and branch out, giving lots of edible leaves with very little coarse stalk. Lacy, mild, sweet, a bit like lettuce but never bitter and makes a good slaw. Adam Tomash seeded his on July 6 for a late Aug.–Sept. harvest. It could be sowed later and, with protection, produce into late fall. But Bryan O'Hara says not as winter hardy as mizuna or tatsoi. Thin to 4–6" for full "heads." ①

3222 **A**: 1/16oz, $2.40 **B**: 1/8oz, $3.60
C: 1/2oz, $6.00 **D**: 1oz, $10.00
E: 4oz, $26.00 **K**: 1#, $96.00

Fun Jen (45 days) A good lettucy-type Chinese cabbage featuring fast-growing undulating leaves with a slightly wrinkly surface. Semi-loose conical very light yellow-green ruffled 6x10" heads of crunchy texture and very mild delicate flavor somewhat like lettuce. The thick white ribs are tasty with a pleasing light tangy sweetness. Excellent frost resistance but will bolt in heat after standing 2–4 weeks. Stores very well. ③

3224 **A**: 1/16oz, $2.20 **B**: 1/8oz, $3.20
C: 1/2oz, $5.50 **D**: 1oz, $6.50
E: 4oz, $13.00 **K**: 1#, $40.00

Blues (52 days) F-1 hybrid. Good bolt resistance, disease resistance and taste in this nappa type. Flavor is relatively pungent, great in kimchi. Suitable for planting early spring through July. Tested negative for BR and BL. Moderate tolerance to DM, ALTS, BSR. ⑤

3225 **A**: 1/16oz, $3.60 **B**: 1/8oz, $6.00 **C**: 1/2oz, $22.00
D: 1oz, $40.00 **E**: 4oz, $150.00

Red Dragon (60 days) F-1 hybrid. When Nikos spied this striking **purple-red** 10" chinese cabbage one autumn in the farm-to-table garden of a NY restaurant, she was smitten. Vibrant color and robust flavor make it all-around fabulous in salads, stir-fries and ferments (purple kimchi!) A bit tricky to grow: heads are prone to internal tipburn. Growing instructions included with each packet. Also know as KN-RCC3. 3-4% green offtypes. ③ **NEW!**

3230 **A**: 40 seeds, $2.20 **B**: 80 seeds, $3.60
C: 200 seeds, $5.00 **D**: 400 seeds, $9.00

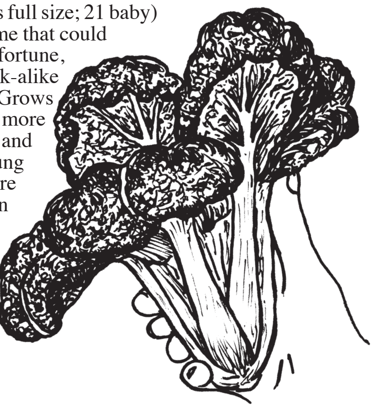
MUSTARDS

~10,000-50,000 seeds per oz, with wide variability among varieties.

Versatile for tasty microgreens. Mustards are potent soil fumigants. Incorporating the residues of mustard crops into your soil can reduce fungal diseases in your succession crop. See the Farm Seed section (**p. 121**) for mustard as a cover crop.

Garnet Giant - Organic (20 days baby; 45 days mature) *B. juncea* Despite its name, this mustard is a favorite for cutting at its dark purple baby stage. At its giant 3' form, plants rival the best of fall color with sun shining off vibrant maroon slightly toothed leaves on gangly lime green stems with yellow bolting flowers—the effect was glorious in our trial garden. The sweet spicy leaves, stems and flowers were all equally tender and delicious, whether grazed or braised. ⑤

3217 *A: 1/16oz, $2.20   B: 1/8oz, $3.50   C: 1/2oz, $5.00*
D: 1oz, $7.20   E: 4oz, $18.00   K: 1#, $65.00



Yukina Savoy - Organic (45 days full size; 21 baby) This Asian green has a Japanese name that could be written 'snow, vegetable' or 'fortune, endure.' The auspicious tatsoi look-alike can survive those early fall freezes. Grows in rosettes like tatsoi, but bigger, more upright at 16" and with less shiny and more puckered leaves. Harvest young as a mild salad green or when mature for braising. The thick deep green spoon-shaped leaves are born on pale green stems. Vigorous, easy to grow and quite *oishii*. ① **NEW!**

3219 *A: 0.5g, $2.00*
B: 1g, $3.00
C: 4g, $4.50
D: 14g, $6.00
E: 28g, $11.00
K: 112g, $23.00

Early Mizuna - Organic (40 days) *B. rapa* (japonica group) Recommended for northland salad enthusiasts, this vigorous heirloom Japanese mustard produces slender white stalks with deeply cut and fringed dark green leaves, not at all pungent. One planting could suffice for full-season production if watered in dry spells and kept cut, though a few will bolt in September. Many folks will prefer to make three or more succession plantings because the young leaves are the most tender. Biennial. Essential in mild mesclun and great for microgreens. Tested negative for BR and BL. ⑤

3226 *A: 1/16oz, $2.00   B: 1/8oz, $3.30   C: 1/2oz, $5.00*
D: 1oz, $8.00   E: 4oz, $20.00   K: 1#, $70.00
L: 5#, $320.00

Ruby Streaks - Organic (40 days) *B. j.* As if an artist had carefully brushed deep purple filigree on the delicately serrated leaves of mizuna. Anne Elder describes it as "a sweet flash of color for any raw dish." Clayton Carter calls it "everything that the so-called Purple Mizuna should be." Bold coloring on deeply toothed leaves. Germinates quickly, grows speedily but, unlike Mizuna, bolts rapidly. Great for multiple spring and fall cuttings, but cannot stand heat. Provides a striking contrast when bunched with **3226** Mizuna, **3222** Tokyo Bekana or **3209** Maruba Santoh. Also unlike Mizuna, has a sweet and spicy flavor, though not excessively hot. Even after it bolts, its flower buds and yellow flowers can add a tang to salads. Carter calls it "the staple of my salad and braising mixes." "A big hit with my chef clients," reports Georgie Smith of Coupeville, WA. Color deepens toward darker maroon in the cool of autumn. ①

3227 *A: 1/16oz, $3.00   B: 1/8oz, $4.40   C: 1/2oz, $7.20*
D: 1oz, $10.00   E: 4oz, $23.00   K: 1#, $84.00

Mizspoona Salad Selects Gene Pool - Organic (40 days) *B. r.* Hits the palate just right: doesn't bite the tongue off like some of the serious mustards, nor bore with blandness. Sweet, juicy with a bit of zing, medium-dark green variable leaves, some rounded, some pointed, slightly ribbed white veins. Tender and delicious in salads or braised. From Frank Morton. Tested negative for BR and BL. **OSSI** Ω ①

3229 *A: 1/16oz, $2.40   B: 1/8oz, $3.60*
C: 1/2oz, $8.00

Golden Frill - Organic (20 days baby, 40 days mature) *B. j.* Light golden-green leaves curl and furl, adding flounce to your salad mix. Intricate serration of foliage seems almost laser cut. Mustard flavor gives an acute peppery zing. Grows quickly for baby greens throughout the year and, at sauté size, resists bolting in the summer heat. Lacy texture tolerant to flea beetle damage. ①

3236 *A: 1/16oz, $3.00   B: 1/8oz, $4.50*
C: 1/2oz, $7.00   D: 1oz, $11.00
E: 4oz, $33.00   K: 1#, $94.00

Pink Lettucy Mustard Gene Pool - Organic (40 days) *B. r.* Frank Morton selected well-mixed breeding pools for disease resistance and particularly for pink and purple pigmentations on the midribs. Lots of variation remains in leaf color (from light green to green with purple edges), in indentations of the leaf edges and some in midrib coloration. Morton continues to select from the pool for specific types and you can, too. He is particularly interested in creating more color for baby cut salad mixes. Commercial operations will find a wealth of good cutting, home gardeners terrific salad fixings, mild but with just enough tang to keep you interested. Survived Roberta's overwintering trial. Tested negative for BR and BL. **OSSI** ❈ Ω ①

3239 *A: 1/16oz, $3.00   B: 1/8oz, $4.40   C: 1/2oz, $9.00*
D: 1oz, $14.00   E: 4oz, $48.00   K: 1#, $150.00

Spicy Green (21 days baby, 41 days mature) *B. j.* Mild yet snappy, Spicy Green out-tasted 12 contenders in its class of finely lobed wasabi-flavored mustard greens. Beautiful, vibrant and viridescent, it grows to 4½" in just 21 days, ideal for cut baby greens. Develops into an elegantly furled and arching 12" long sauté leaf, withstanding summer's highs and autumn's lows with equal finesse. Packed with isothiocyanates, known to neutralize cancer-causing chemicals and interfere with tumor growth. ❈ ⑤

3241 *A: 1/16oz, $2.30   B: 1/8oz, $3.60   C: 1/2oz, $6.00*
D: 1oz, $9.00   E: 4oz, $21.00   K: 1#, $64.00

Green Wave (45 days) *B. j.* This 1957 AAS winner is the best-adapted mustard for our climate. Its hot mustardy flavor makes it a prime ingredient in piquant mesclun. Not as hot when cooked. Will come back when cut; slow to bolt. Survived Roberta's overwintering trial. ❈ ②

3243 *A: 1/16oz, $2.00   B: 1/8oz, $2.70   C: 1/2oz, $3.60*
D: 1oz, $5.50   E: 4oz, $9.00   K: 1#, $23.00

Red Giant - Organic (45 days) *B. j.* (integlifolia group) Large purple-tinted savoyed leaves make the 18" plants very decorative. Color intensifies in cooler temperatures, as spiciness wanes. Tastes like horseradish to some, peppery to others. This heirloom Japanese mustard is a standard ingredient in spicy mesclun. Survived outdoor temperatures down to 18° when double-covered with **8874** Agribon 19 (p. 141). ❈ ③

3245 *A: 1/16oz, $2.10   B: 1/8oz, $3.60   C: 1/2oz, $4.90*
D: 1oz, $7.00   E: 4oz, $16.00   K: 1#, $52.00

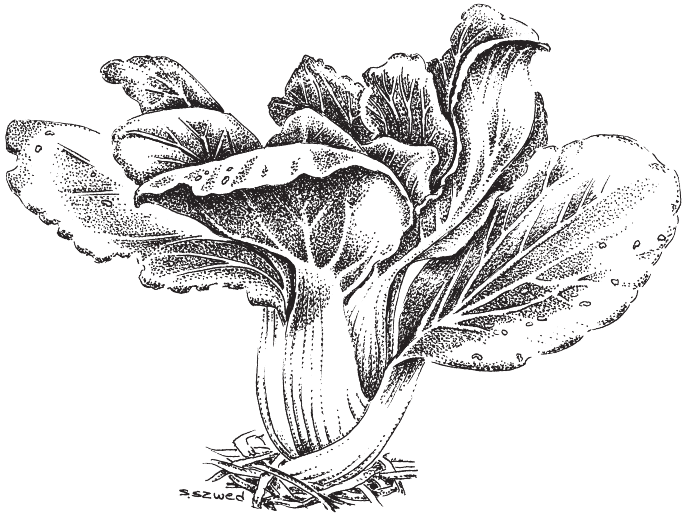
Osaka Purple - Organic (45 days) *B. j.* Striking large purple-streaked green foliage with a zesty flavor that leaves a lingering tingle on the tongue. As the temperatures grow hotter, so do the leaves. A rapid grower, but more compact than Red Giant, mature at 12–14". Broad stems are also succulent. Used like Red Giant for mesclun and braising. ②

3247 *A: 1/16oz, $2.30   B: 1/8oz, $3.50   C: 1/2oz, $5.50*
D: 1oz, $9.00   E: 4oz, $28.00   K: 1#, $96.00

Toraziroh - Organic (45 days) *B. alboglabra* A robust performer with just the right kind of mustardy bite. Rapidly develops prolific yields of very dark green large leaves distinctively but not overwhelmingly pungent. Has won many favorable reviews from brassica lovers. Stems, also edible, have a flavor somewhat like pac choi. Relatively slow to bolt. ①

3253 *A: 1/16oz, $2.30   B: 1/8oz, $3.60   C: 1/2oz, $7.00*
D: 1oz, $10.00   E: 4oz, $30.00

As always, Fedco is our farm's go-to for seeds. While I love the on-line ordering option, please CONTINUE to publish your great honest non-glossy print catalog. It is the best in the business!
– Brett J Grohsgal, Lexington Park, MD



PAC CHOI *B. r.* (chinensis group)

~10,000–14,000 seeds/oz. 1 g packet sows 18 ft; 1/16 oz packet sows 30 ft.

Also known as Bok Choy. Pac Choi is a good crop for microgreens.

Shuko (45 days) F-1 hybrid. Baby pac choi with green stems likes cool temperatures but resists bolting for a long time, even in heat. Vase-shaped 6–12" plants have broad green petioles with beautiful dark leaves. Tender and creamy when steamed or stir-fried. John Eisenstein who farms in Port Royal, PA, reported that Shuko "performed much better as a baby harvest than any other I've tried, including much more expensive ones.…Quite cold hardy as well." ⑤

3260 ***A**: 1/16oz, $2.20* ***B**: 1/8oz, $3.60* ***C**: 1/2oz, $6.00*
***D**: 1oz, $9.00* ***E**: 4oz, $23.00* ***K**: 1#, $75.00*

Purple (48 days) F-1 hybrid. Adds versatility to mixes and salad. This new color in pac choi debuted in many 2009 seed catalogs. My favorite of several strains in the trial, showed the most vigorous early growth and darkest hue. Purple leaf tops contrast with green veins and stems. Quick growers; harvest them within three weeks as 4–6" baby-leaf greens, their best spring use. For fall crops you may allow them to grow 8–10" full-sized heads. Along the way they lose some of their deep color and mature to a greenish purple. ②

3264 ***A**: 1g, $4.40* ***B**: 2g, $8.00* ***C**: 4g, $12.00*
***D**: 14g, $37.00* ***E**: 28g, $70.00*

Prize Choy - Organic (50 days) Classy open-pollinated pac choi with celery-like white stems and vase-shaped 15–18" tall heads, like two vegetables in one with succulent stems and tender greens. Good for kimchi or stir-fries. ①

3270 ***A**: 1/16oz, $2.60* ***B**: 1/8oz, $4.00* ***C**: 1/2oz, $5.60*
***D**: 1oz, $10.00* ***E**: 4oz, $36.00* ***K**: 1#, $130.00*

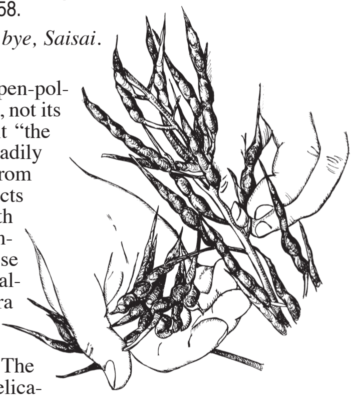
Joi Choi (50 days) F-1 hybrid. Leaves are much darker green than Prize Choy's and its basal stem is almost double the thickness, making it so succulent that trialer Adam Tomash prefered it to all other varieties. Market growers appreciate its uniformity. Suitable both for summer and fall crops, though much less likely to bolt in the fall. Do not disturb the roots when transplanting and space 1' apart. Tested negative for BR and BL. ⑤

3273 ***A**: 1g, $3.40* ***B**: 2g, $5.80* ***C**: 4g, $9.00*
***D**: 14g, $23.00* ***E**: 28g, $42.00*

RADISHES for pods *Raphanus sativus*

"Regular" radishes for roots on pages 57-58.

Saisai Leaf Radish (35 days) *Bye bye, Saisai. Dropped for slow sales.*



Rat-tail Radish - ECO (50 days) Open-pollinated. Grown for its tangy seed pods, not its roots. William Woys Weaver called it "the Don Juan of radishes" because it so readily crosses with all others. Introduced from Japan in 1866-67 by Gregory. Attracts butterflies and other pollinators, worth growing even if you don't want to consume its pungent pods. Because these often grow as long as rat's tails and almost as fibrous, garden writer Barbara Damrosch advises harvesting them at "skinny bean size like a French filet bean" for maximum tenderness. The immature purplish-green pods are a delicacy in India and Asia, adding a mustardy zing to salads, stir-fries and other dishes. When exposed to vinegar the purple pods turn a brilliant green that will bleed into a pickling brine and enhance the color of cucumber pickles. Radish plants will grow to 5' and branch out as they set seed, so give them plenty of room. Stake or trellis them for ease of picking; tomato cages work well. Your objective is not a small root, but a generous supply of pods. ✿ ①

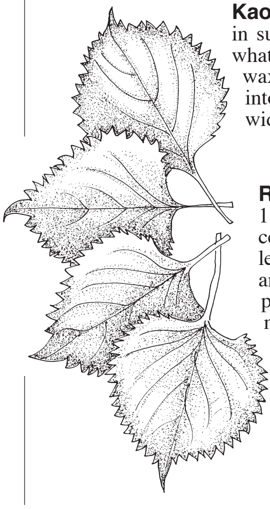
2264 ***A**: 1/8oz, $3.60* ***B**: 1/2oz, $9.50* ***C**: 1oz, $17.00*

SHISO *Perilla frutescens* var. *crispa*

~500–800 seeds/g.

Both green and red shiso are highly aromatic and ornamental with frilly serrated leaves. Popular in Japan, the seeds, sprouts, leaves, buds and flowers are all used in cuisine. The seeds are part of Japan's famous seven-spice mix.

Culture: To break dormancy, freeze and thaw seed several times over a 21–45 day period. Soak seeds several days or until they sprout. Move to indoor flats, then transplant in warm moist well-drained soil. Grows to 4'. Absolutely intolerant of frost.



Kaori Green Shiso (85 days) Cinnamony leaves used in sushi and to garnish rice, noodles, soups, pickles or whatever needs a kick of flavor. Think cocktails! A friend waxes poetic about the virtues of shiso: it's like biting into how a fragrant flower smells. Green shiso was not widely used in Japan until the 1960s. ③

3282 ***A**: 1g, $2.80* ***B**: 4g, $5.80*
***C**: 12g, $13.00* ***D**: 36g, $35.00*

Red Shiso (85 days) Introduced to the U.S. in the 1850s from Japan where it's been prized since the 8th century. Purplish-red anise-scented sharp-flavored leaves are used in sushi, sauces, garnishes, pickles and stir-fries. Used to color umeboshi and other pickles red. Also known as *zi su*, a specific in Chinese medicine for seafood poisoning. Louise Weber of Greenwich, CT, asserts that deer won't touch it and plants it around their favorite crops. ③

3283 ***A**: 1g, $2.80*
***B**: 4g, $6.00*
***C**: 12g, $12.00*
***D**: 36g, $26.00*

Looking Ahead with 2020 Vision: Michael Foley

Michael Foley came to farming later in life. He is now a "serious farmer on a small scale" and a food activist in Willits, CA, a two-hour drive north of the San Francisco Bay area. His original interview with Nikos was postponed due to a preemptive large-scale electricity blackout by PG&E to forestall wildfires. It seemed an apt intrusion of reality into a conversation about resilience. Here is Nikos' account of their talk:

One way Michael frames our current agricultural circumstances is to have us remember that "the US economy interests grew up in part based on commodity agriculture" for export "to feed Europe, which led to large-scale grain operators in the Midwest, Plains states, and then the arid Southwest. In the past disastrously low prices for farmers was driven by the interest of eastern banks and the railroads. Currently it is fueled by the Federal subsidy program, which encourages overproduction while keeping farmers barely afloat. The small farm movement and farmer suicides are both responses to this situation."

Cheap meat from CAFOs (concentrated animal feeding operations, so often in the news), processed foods and low prices stem from this model. While low prices might sound like a good idea, "the industrial model is to feed people as cheaply as possible in order to keep wages as low as possible. Agriculture becomes profit-oriented at all costs, which makes efficiency the lynch pin and leads to exploitation—of Mexican labor, of the ecology."

In the long term, Michael does not see a place for large-scale commodity agriculture. "As things evolve, as we leave the age of petroleum, as high tech becomes more expensive, things will take care of themselves. Small farmers will need to provide most of our food for our communities, and our communities will need to support us."

"So what we really need is resilience in the mid-term. Because today it is really difficult to provide food for our communities as long as the local suppliers, the groceries and co-ops, import cheap food. And, here in California, and elsewhere, land is a big issue; we need to find ways to make land available to small farmers. Communities should be buying local farm land [to hold in common]; they should make that investment in the future."

What do we need in the short term? Michael focuses on young farmers, the denizens of the future. He tells them "if you love doing it you have to find ways to start doing it. And you can't be fixated on making a middle class living solely from farming—not right now. And make it sustainable. Avoid debt. Keep expenses down. Go slowly. And provide for your own subsistence first. Draw on the community around you, as you serve it. Take care of yourself."

Judicious words from an elder, followed immediately by those of the activist: "Oh and we have to get the regulatory burden off small farms."

Michael walks the talk. At the School of Adaptive Agriculture, which he co-founded, they "put the young people doing practical work on local farms. Then we talk about it." In some of that conversation he would be highlighting "the immense collection of knowledge and inventiveness of traditional farming. For in looking to solve the economic and climate stressors of our time, we should widen our look…to resources that farmers in the past have developed for us."

A farsighted vision, even if it's 2020.

For further inspiration we recommend Michael's new book Farming for the Long Haul—*see page 153 of our Books section.*

KALE & COLLARDS

Brassica spp.

~175–280 seeds/g. ~4200–9800 seeds/oz.

Important crop in colder climates owing to its natural resistance to frost, kale is sweeter after exposure to cold. Excellent for microgreens.

Culture: Start indoors March–May for setting out May–July, or direct-seed in May. To enjoy it at its best and to avoid the worst of the flea beetle season, direct seed in July or August for late-season maturity.

Minimum germination soil temperature 40˚, optimal range 55–95˚.

Diseases: BL=Blackleg, BR=Black Rot

See **page 12** for pest and disease remedies.

Note: Because of a rule in Oregon, we cannot ship brassica packets larger than 1/2 oz (14g) to the Willamette Valley, except those that have tested negative for Black Leg (BL) and Black Rot (BR). Our information at press time is in the descriptions here; please check our website for updates.

Days to maturity are from date of seeding.

Kale Mix (60-65 days) With the surge of interest in kale, this has become our most popular mix, sales exceeding 2,400 packets each of the past four years. If it's hard to pick just one or two kale varieties from so many tempting choices, here's the solution: enjoy the whole medley of diverse colors, patterns and shapes from one packet.

3469 *A*: 2g, $2.80 *B*: 4g, $4.60 *C*: 14g, $11.00
D: 28g, $18.00 *E*: 112g, $60.00

CURLY LEAF KALE *B. oleracea* (acephala group)

Scarlet - Organic (30 days baby, 55 days mature) Open-pollinated. Redbor has been hard to obtain in recent years so we debuted this good substitute on our website four years ago. It is comparable to Redbor in plant height, leaf shape and color. Suitable for baby leaf or bunching. Enjoy its frilly purple leaves. ❆ ③

3449 *A*: 2g, $3.00 *B*: 4g, $5.00 *C*: 14g, $12.00
D: 28g, $16.00

Dwarf Blue Scotch Curled - Organic (30 days baby, 56 days mature) Open-pollinated. Also known as Vates. The most commonly grown kale variety, introduced in 1950 by Vates (see **3441** Collards, next page) out of the pre-1865 heirloom Dwarf Green Curled. Dense frilly finely curled blue-green leaves on compact upright 12–16" plants stand well, maintain color and resist yellowing in cold and heat. Hardy and productive. Best as a fall crop, planted in July or early August. More variable than the hybrids. ❆ ③

3450 *A*: 2g, $2.60 *B*: 4g, $4.00 *C*: 14g, $7.00
D: 28g, $10.00 *E*: 112g, $24.00 *K*: 448g, $70.00

Beedy's Camden - Organic (60 days) *No crop this year.* Hope to have back in 2021.

Redbor (60 days) F-1 hybrid. A spectacular all-red kale, highest rated in the OSU trials. Frilly ruffled leaves take on dramatic purple color in cool weather. A superb ornamental edible, gorgeous enough to make a terrific flower border or edge plant. Can be grown in summer but really comes into its own in fall. Quite cold hardy. Grows to 3'. For a rainbow-kale patch, interplant with White Russian, Red Russian, Winterbor and Nero di Tuscana. Much less susceptible to flea beetles than Red Russian kale. Tested negative for BR and BL. ❆ ④

3452 *A*: 0.5g, $6.60 *B*: 1g, $11.00 *C*: 4g, $38.00
D: 14g, $125.00 *E*: 28g, $240.00

Winterbor (60 days) F-1 hybrid. Highly sought-after kale beloved by commercial growers and home gardeners alike, crinkly Winterbor was the most vigorous grower in each of our last three kale trials, showing the best cold hardiness and the richest blue-green color. Curled leaves are highly ruffled with good mild flavor, especially after they've been tickled by some of our frigid November nights. 14–16" tall. Tested negative for BR and BL. ❆ ④

3453 *A*: 0.5g, $3.40 *B*: 1g, $6.00
C: 4g, $14.00 *D*: 14g, $44.00
E: 28g, $75.00

Rainbow Lacinato - Organic (61 days) Open-pollinated. Who but Frank Morton would think to cross **3467** Lacinato with **3452** Redbor? The result? A spectacular kale that combines some of the best features of both. Curly edges, red veins, purple leaves, blue-green leaves, make a banquet of diverse shapes and colors. Lacinato lends deepened background color to Redbor's productivity, super cold-hardiness and reluctance to bolt. A heavenly combination. Tested negative for BR and BL. **OSSI** Ω ❆ ①

3457 *A*: 2g, $2.80 *B*: 4g, $5.00 *C*: 14g, $11.00
D: 28g, $16.00 *E*: 112g, $44.00

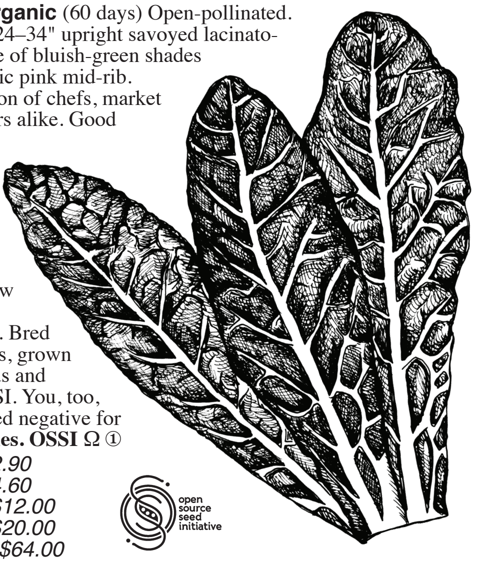
Baltisk Rod Purpurkal - Organic (63 days) Open-pollinated. In 2008 we selected this extraordinary kale to add to our seed productions after our first sight of it. We had never seen a kale this beautiful and we haven't since, I can't find words to describe the deep psychedelic dark green and purple-red shades these frilly curled leaves take on as the autumnal chill deepens, but trialer Donna Dyrek is succinct: "Very very curly. Very red. Extremely hardy." Its flavor is mild, its feathery texture pleasantly chewy with a nice slow sweet aftertaste. An incomparable ornamental edible! Our current grower is selecting for cold-hardiness. Originally from the Baltic; one of Redbor's parents. We thank our friends at Runabergs Froer in Sweden for giving us the original seed. *Supply limited*. ❆ ①

3458 *A*: 1g, $2.40 *B*: 4g, $6.00

Darkibor (65 days) F-1 hybrid. A top-quality Dutch variety with very dark green, triple-curled richly textured leaves. Crinkly and very curly. The uniform 18–20" tall plants hold well in the field in all weather conditions and continue to grow. Excellent for successive harvesting, Darkibor has comparable cold hardiness to Winterbor and holds its own in taste tests. Tested negative for BR and BL. ❆ ④

3459 *A*: 0.5g, $3.60 *B*: 1g, $6.00 *C*: 4g, $16.00
D: 14g, $46.00 *E*: 28g, $84.00

DINOSAUR KALE *B. o.* (acephala group)



Dazzling Blue - Organic (60 days) Open-pollinated. What fun! Vigorous 24–34" upright savoyed lacinato-leaved kale in a range of bluish-green shades and all with a dramatic pink mid-rib. Sure to attract attention of chefs, market growers and gardeners alike. Good flavor, selected for cold hardiness, and the color intensifies in cool weather. All the result of Hank Keogh's breeding inspiration to back-cross Rainbow Lacinato with its Lacinato predecessor. Bred for organic conditions, grown by Wild Garden Seeds and released through OSSI. You, too, will be dazzled. Tested negative for BL. **Breeder Royalties. OSSI** Ω ①

3465 *A*: 2g, $2.90
B: 4g, $4.60
C: 14g, $12.00
D: 28g, $20.00
E: 112g, $64.00

Nero di Tuscana or **Lacinato** (62 days) Open-pollinated. Also known as Cavolo Palmizio. The 'Tuscan Black' was described by Vilmorin-Andrieux in 1885 and traced back to the 18th century by William Woys Weaver who calls it "one of the most beautiful kales to grace any kitchen garden" and suggests interplanting with a vivid green lettuce for a spectacular color combination. Elemental, a stripped-down version of kale shaped like a miniature palm tree about 18" high. Very dark green wrinkled strap-like leaves appear almost black at a distance, looking minimalist compared with the lush curly-leaved kales. Its tough leaf strength makes it very sturdy for distributing into CSA boxes. Also used for microgreens. Delicious and nutritious as well as adapted to a wide temperature range, its sweet mild flavor improves after frost. According to Alan LePage, it demands more fertility than other kales. If it is looking anemic after the summer flea beetle invasions, LePage recommends sidedressing it with fertilizer or compost. Using this treatment, he's grown 6' plants! ②

3467 *A*: 2g, $2.40 *B*: 4g, $3.60
C: 14g, $8.00 *D*: 28g, $10.00
E: 112g, $15.00 *K*: 448g, $48.00

Weight equivalents

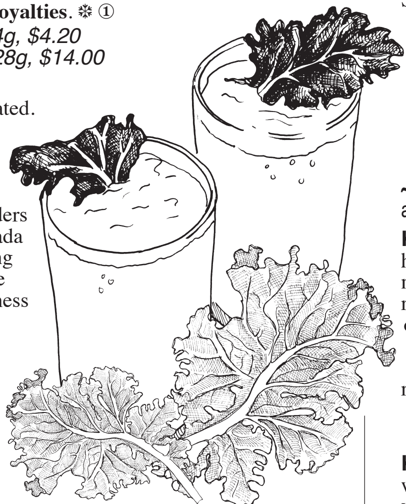
1/16 oz = 1.77 g
1/8 oz = 3.55 g
1/4 oz = 7.09 g
1 gram = .035 oz
1/2 oz = 14.2 g
3 grams = .106 oz
1 oz = 28.4 g
6 grams = .212 oz
4 oz = 113.5 g
24 grams = .851 oz
1# = 453.6 g
120 grams = 4.24 oz
2.2# = 1000 g

> Bicycle everywhere, plant everything and drink good beer.
> – Alden Booth, Gill, MA

SIBERIAN KALE *B. napus* (pabularia group)

Russian Frills - Organic (55 days) Open-pollinated. A re-introduction of an almost-lost Oregon variety bred by Tim Peters. The folks at Adaptive Seeds discovered it being maintained by seedsman Peter Bauwens in Belgium. Similar to Red Russian when young, the purple and red-veined leaves get very frilly as they mature while remaining exceptionally tender. The dazzling frills upon frills upon frills make this 18–28" kale a great addition to kale bunches or mesclun mixes. With similar hardiness to **3464** White Russian, it makes a good tunnel plant. **Breeder Royalties**. ❆ ①

3460 ***A**: 2g, $2.60* ***B**: 4g, $4.20*
***C**: 14g, $9.00* ***D**: 28g, $14.00*
***E**: 112g, $38.00*



Red Russian (60 days) Open-pollinated. Called Buda Kale by Fearing Burr in 1863, Ragged Jack by Vilmorin-Andrieux in 1885, and Communist Kale in 2006 by workers at Darthia Farm in Gouldsboro, ME. Russian traders brought this Siberian heirloom to Canada in the 19th c. It has undergone a rousing revival in recent years. Vigorous edible landscape plant a big hit for its tenderness and delicate flavor. Its oakleaf foliage colors after fall frosts. Use soon after picking, or chill leaves in cold water; otherwise wilts quickly. Red and purple veining changes to dark green when cooked. Also a popular variety for microgreens. Tolerates outside temperatures of 14° with a double-layer of row cover (p. 141). ❆

Red Russian ③

3461 ***A**: 2g, $2.00* ***B**: 4g, $2.40* ***C**: 14g, $3.80*
***D**: 28g, $5.60* ***E**: 112g, $9.30* ***K**: 448g, $26.00*
***L**: 5#, $120.00*

Red Russian - Organic ③

3462 ***A**: 2g, $2.20* ***B**: 4g, $3.50* ***C**: 14g, $5.00*
***D**: 28g, $7.00* ***E**: 112g, $15.00* ***K**: 448g, $52.00*
***L**: 5#, $240.00*

White Russian - Organic (60 days) Open-pollinated. A flat-leaf Siberian type, silvery green with white veining. Similar to Red Russian, but a few inches taller, a third more productive, with larger, more serrated leaves. Also, much hardier than Red Russian, will hold into November without protection and thrive in an unheated greenhouse, even if temperatures go down to 0°. Gene has harvested White Russian outdoors in Waterville out of the January snow. If season is extended, White Russian will produce new clusters of smaller tender secondary leaves from old axils. As with other kales, flavor gets sweeter with frost. Tested negative for BL. **OSSI** ❆ Ω ①

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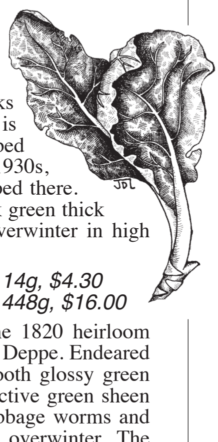
3464 ***A**: 2g, $2.50* ***B**: 4g, $4.00* ***C**: 14g, $10.50*
***D**: 28g, $14.00* ***E**: 112g, $40.00* ***K**: 448g, $135.00*

COLLARDS *B. o.* (acephala group)

~200 seeds/g. All collards listed here are **open-pollinated**.
To avoid flea beetles, plant in July for September maturity. Collards are excellent microgreen crops.



Vates (60 days) Because of their cold hardiness, collards were a miracle crop that sustained many southern folks through the winters during the Great Depression. Vates is the acronym for Virginia Truck Experiment Station, a hotbed of collard research from 1907-1967. Introduced in the 1930s, this was probably the best-known of all the developed there. Large upright $1^{1}/_{2}$–2' plants give generous harvests of dark green thick crumpled leaves with a mild cabbage-like flavor. Will overwinter in high tunnels in our climate. ❆ ②

3441 ***A**: 2g, $1.90* ***B**: 4g, $3.00* ***C**: 14g, $4.30*
***D**: 28g, $5.20* ***E**: 112g, $7.50* ***K**: 448g, $16.00*

Cascade Glaze - ECO (60 days) A re-selection of the 1820 heirloom Green Glaze, by Alan Kapuler, Jeff McCormack and Carol Deppe. Endeared to southerners as "creasy" or "greasy" greens for its smooth glossy green leaves. The waxy texture that gives the leaves their distinctive green sheen also imparts heat and cold tolerance and resistance to cabbage worms and loopers. Where temperatures stay above 0°, Glaze can overwinter. The delicate-looking leaves, delicious steamed, are at their sweet tender best early in the season or in late fall after they've been nipped by frost. ❆ ① **BACK!**

3442 ***A**: 2g, $2.40* ***B**: 4g, $4.00*

Champion (60 days) Rich dark Vates strain selected to stand longer. Thin to 12" apart for good size. Best as a fall crop. For greens into November in northern New England. On Cape Cod, Lillian Kuo was still harvesting Champion the second week of February without protection over a mild winter. Also survived Roberta's overwintering trial. Our southern friends enjoy the greens all winter. ❆ ②

3443 ***A**: 2g, $1.90* ***B**: 4g, $3.00* ***C**: 14g, $4.30*
***D**: 28g, $5.20* ***E**: 112g, $7.00*

Variegated Collards - ECO (61 days) Appearances can be deceiving. The variegation doesn't appear until frost. In my initial look at Donna Dyrek's trials one August its waxy leaves had a sickly yellow-green hue. After the nights got nippy, the plants had transformed, developing beautiful white ribs for a dazzling display of contrasting color. Not just eye candy, they're also sweet and tender eating. When fall comes around Dyrek throws the Champions to the animals and heads for Variegated. Florida family heirloom from around 1910, introduced in 1999 by our friends at Southern Exposure. Still shows some variation. ②

3444 ***A**: 2g, $3.00* ***B**: 4g, $4.80* ***C**: 14g, $14.00*
***D**: 28g, $24.00* ***E**: 112g, $84.00*

KOHLRABI

B. o. (gongylodes group)

~100–300 seeds/g. Don't like kohlrabi? Try harvesting it young. It turns tough, woody and inedible if you wait too long. See p. 12 for Brassica disease information.

Konan (38 days) F-1 hybrid. Author Robert E. Howard's sword-and-sorcery hero emerges once again…as a Kohlrabi? Indeed, the legend continues! A nicely rounded $3^{1}/_{2}$" diameter head weighing $^{2}/_{3}$ lb, Konan the Kohlrabi's rampant health and vigor aided its conquest of our 2018 kolhrabi trial, where one Fedco staffer deemed its crunchy crisp texture and mild nutty sweetness "barbarically good." This bold brassica matured a week earlier than our long-held Winner and showed equally high quality. 2016 AAS Winner. High resistance to FY. Tested negative for BR and BL. ④

3470 ***A**: 25 seeds, $2.40* ***B**: 100 seeds, $6.80*
***C**: 500 seeds, $26.00* ***D**: 1,000 seeds, $40.00*

Kolibri (45 days) F-1 hybrid. Reaffirmed again as the best purple kohlrabi we've found: quick growing, very uniform, purple on the outside, crisp and white on the inside, reliable, tasty and productive. An August planting will size up in October. Very hardy; will winter over with only snow cover for protection—in fact made it through the open winter of 2011-12 in Maine. Interplant with **3036** Bright Lights swiss chard (p. 29) for a dazzling display. Tested negative for BR and BL. ❆ ④

3471 ***A**: 0.5g, $3.80* ***B**: 1g, $5.40* ***C**: 4g, $16.00*
***D**: 14g, $50.00* ***E**: 28g, $94.00*

Winner (45 days) F-1 hybrid. Longtime customer Brian Cramer of Hutchins Farm in Concord, MA, convinced CR to grow kohlrabi again for the first time in fifteen years. "Winner," Cramer said, "has been my most successful kohlrabi for many years, always beating out others I have tried in consistency, quality and appearance." CR grew Winner in 2012 and it proved to be everything Cramer said. Direct-seeded in late June into a severe drought, irrigated sparingly, thinned belatedly, it even survived his two-week midsummer absence and produced its lovely green stem bulb three weeks ahead of Early White Vienna. Its tender sweet flavor was a revelation. Perhaps you, too, have overlooked this unusual under-rated vegetable, or maybe you were just waiting for a real Winner? Tested negative for BR and BL. ⑤

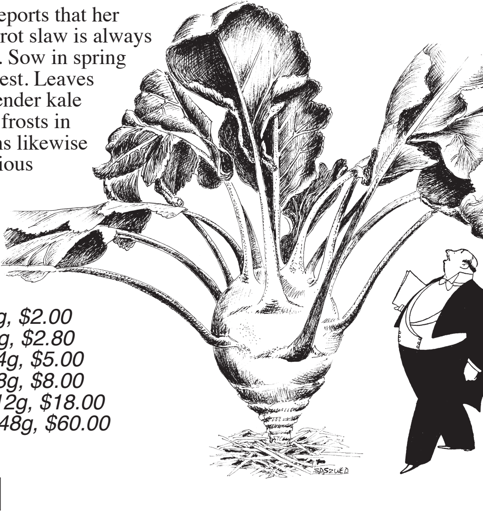
3473 ***A**: 0.5g, $2.90* ***B**: 1g, $4.60* ***C**: 4g, $11.00*
***D**: 14g, $34.00* ***E**: 28g, $60.00*

White Vienna (58 days) Open-pollinated. Dwarf heirloom variety with short tops and medium stems is no longer the earliest, but the uniform globe-shaped bulbs have crisp white tender flesh with great flavor and texture. Performed well in this year's taste test. Do not overcrowd. From Central Europe before 1860. ②

3475 ***A**: 2g, $1.80* ***B**: 4g, $2.40* ***C**: 14g, $3.80*
***D**: 28g, $4.60* ***E**: 112g, $7.00* ***K**: 448g, $20.00*

Gigante (130 days) Open-pollinated. These get enormous, regularly exceeding 10" in diameter and 10 lb. Unlike other kohlrabi, this Czechoslovakian heirloom doesn't get woody even at such a large size. A root cellar staple, its crisp white mildly tangy flesh will add zest to your meals while you await the first edible greens of spring. Staffer Emily Skrobis praises Gigante: "It tastes alive in the dead of winter" and reports that her kohlrabi and carrot slaw is always a hit at potlucks. Sow in spring for late fall harvest. Leaves sweeten like a tender kale after a few hard frosts in the fall and stems likewise become as delicious as their broccoli counterparts. Also a favorite of Jason Kafka who plants a 300' bed. ③

3478 ***A**: 2g, $2.00*
***B**: 4g, $2.80*
***C**: 14g, $5.00*
***D**: 28g, $8.00*
***E**: 112g, $18.00*
***K**: 448g, $60.00*



LETTUCE

Latuca sativa

~1000-1100 seeds/g. All our lettuce is **open-pollinated**.

Culture: May be started indoors in March and at regular intervals thereafter for early transplanted successions. Direct seed outdoors as soon as ground can be worked and repeat every 2 weeks for continuous supply. Fall and overwintered harvests are becoming standard practice.

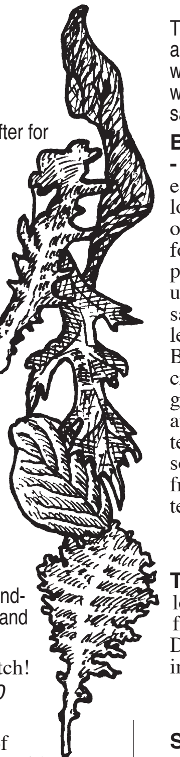
Lettuce grows best in cool seasons with ample moisture. It will not head unless thinned frequently and ruthlessly to a final distance of 1'. Heavy nitrogen feeders. The snowflake symbol ❆ after a cultivar description indicates that a variety is hardy through at least part of our Maine winter. For summer harvest, select varieties carefully: bolting, bottom rot and tipburn are problems if a variety can't take the heat! Using shade cloth can keep lettuce tender and sweet longer into summer.

Optimal germination temperature range 40–80˚ though many varieties won't germinate in soil temperatures above 75˚ and most shut down above 80˚.

Diseases & Pests: See chart below right for more info.

BOR	Bottom Rot	SC	Sclerotinia
DM	Downy Mildew	TB	Tipburn
PM	Powdery Mildew	X	Xanthemonas

Days to maturity are from direct seeding.



LETTUCE MIXES

Each mix has at least a half-dozen different lettuces, all suitable for cut-and-come-again culture. Exact components will vary according to availability and are posted on our website.

Lettuce Mix Contrasting colors and leaf forms for your salad patch!

2980 ***A**: 1g, $2.20* ***B**: 4g, $4.50* ***C**: 14g, $9.00*
***D**: 28g, $14.00* ***E**: 112g, $44.00*

Lettuce Mix - Organic A high-quality mix consisting entirely of certified-organic seed. For certified growers and folks wishing to avoid ④⑤ and ⑥ suppliers.

2981 ***A**: 1g, $2.50* ***B**: 4g, $6.00* ***C**: 14g, $11.00*
***D**: 28g, $20.00* ***E**: 112g, $70.00*

DeLuxe Lettuce Mix - Organic Contains those fancy, pricey and rare varieties; the Mercedes Benz of lettuce mixes and all organic!

2983 ***A**: 1g, $2.70* ***B**: 4g, $7.00* ***C**: 14g, $14.00*
***D**: 28g, $24.00* ***E**: 112g, $88.00*

Freedom Lettuce Gene Pool - Organic An inspiring mix with lots of surprises, Frank Morton created this in his so-called "Hell's Half-Acre lettuce trial." He crossed his most disease-resistant with his best-tasting varieties to select for excellent traits. At least 10–12 "great looking and great tasting" variations won raves from trialer Donna Dyrek. Morton invites growers and breeders to work with this mix to create new varieties for their farms or for the general public, while stipulating that nothing derived from it may be patented or protected from others' use. This strategy is known as copyleft (as opposed to copyright). Morton has adopted it to keep his varieties and their derivatives in the public domain as a protected commons. Copyleft has the potential to return to free use such shared resources as our plant heritage that rightfully belong to all of us. (More about trait-patenting in sidebar at right.) As Morton proclaims, "Adaptive breeding cannot occur under a system of restrictive ownership." **OSSI** Ω ①

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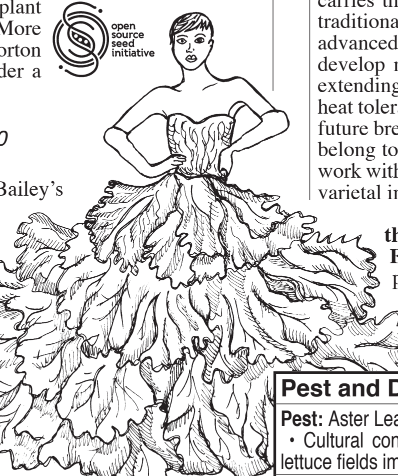
2984 ***A**: 1g, $3.60* ***B**: 4g, $9.60*
***C**: 14g, $24.50* ***D**: 28g, $45.00*
***E**: 112g, $160.00*



Red Carpet Lettuce Mix - Organic Roberta Bailey's mixes are among the best in the business. She chooses from all the superior organically grown bronze and red varieties that we have in stock. Sure to dazzle.

2985 ***A**: 1g, $2.70*
***B**: 4g, $6.60*
***C**: 14g, $14.50*
***D**: 28g, $24.00*
***E**: 112g, $86.00*

Summer Lettuce Mix A special selection of red, green and bronze lettuce varieties that most years will stand well into July without bolting. Our best-selling lettuce mix.

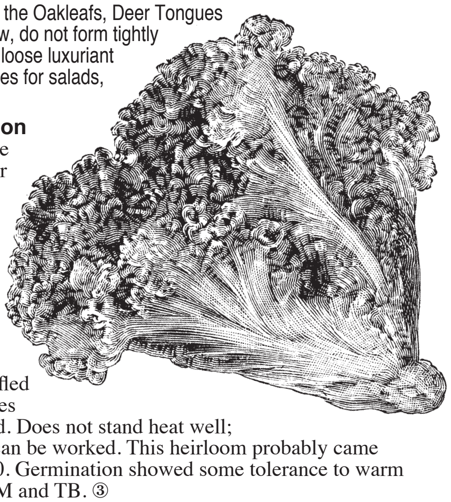
2986 ***A**: 1g, $2.50* ***B**: 4g, $6.00*
***C**: 14g, $11.00* ***D**: 28g, $20.00* ***E**: 112g, $65.00*

Winter Lettuce Mix For those who crave fresh salads most of the year, a popular selection of varieties with the potential to survive the winter with protection, then resume vigorous growth in the spring. ❆

2988 ***A**: 1g, $2.50* ***B**: 4g, $6.00* ***C**: 14g, $11.00*
***D**: 28g, $20.00* ***E**: 112g, $65.00*

LOOSELEAF

These varieties, along with the Oakleafs, Deer Tongues and Lollo Rossos that follow, do not form tightly wrapped heads, but rather loose luxuriant whorls and mounds of leaves for salads, sandwiches and mixes.



Black Seeded Simpson - Organic (42 days) The earliest and most popular looseleaf variety. "One of our absolute favorites for early season production with heads up to 16" diameter," said NY State market lettuce grower Lisa Bloodnick. Large loose crumpled juicy light-green leaves slightly ruffled and blistered. Inner leaves tender and well blanched. Does not stand heat well; sow as early as ground can be worked. This heirloom probably came from England circa 1850. Germination showed some tolerance to warm temperatures. Resists DM and TB. ③

2712 ***A**: 1g, $2.10* ***B**: 4g, $3.20* ***C**: 14g, $5.00*
***D**: 28g, $7.00* ***E**: 112g, $15.00* ***K**: 448g, $44.00*

Tango - Organic (45 days) For many commercial growers, Tango is the looseleaf of choice for overwintering and for productivity in cool weather. A frilly standard in salad mixes and mesclun adding loft and interesting texture. Deeply cut pointed leaves have pleasant flavor and no bitterness. Bolts readily in summer, so plant accordingly if you want it to grow to full maturity. ❆ ②

2791 ***A**: 1g, $2.30* ***B**: 4g, $4.50* ***C**: 14g, $9.00*
***D**: 28g, $11.00* ***E**: 112g, $35.00*

Salad Bowl (46 days) Bright-green frilly notched leaves form lofty 12–14" compact rosette. Stands heat better than Black Seeded Simpson, but at its best in cool weather, not summer. 1952 AAS bred by Ross Thompson of the USDA. Has survived outside temps of 18˚ double-covered under row cover.

Salad Bowl ②

2722 ***A**: 1g, $1.80* ***B**: 4g, $2.30* ***C**: 14g, $3.20*
***D**: 28g, $4.50* ***E**: 112g, $8.00* ***K**: 448g, $20.00*
***L**: 5#, $85.00*

Salad Bowl - Organic ③

2723 ***A**: 1g, $2.40* ***B**: 4g, $3.50* ***C**: 14g, $6.00*
***D**: 28g, $9.00* ***E**: 112g, $16.00* ***K**: 448g, $56.00*
***L**: 5#, $250.00*

"I wish my work to be shared, not monopolized."

–Lettuce breeder extraordinaire Frank Morton

Genetic engineering is not the only ethical issue in seed production. A new and disturbing trend in lettuce and flowers is the prevalence of trait- and utility-patented varieties. One of our competitors listed more than one third of its lettuce varieties as utility- or trait-patented. Another carries these varieties but does not label them. Utility patents stand the traditional rationale for variety protection on its head. The original reason advanced in its support was to offer breeders an economic incentive to develop new varieties for agricultural improvement. Utility patents, by extending ownership beyond individual varieties to their traits (such as heat tolerance and leaf color) that are found in nature, stultify any possible future breeding improvements by monopolizing those traits that rightfully belong to the commons, cutting off any opportunity for other breeders to work with them for about 20 years. Once traits are tied up in private hands, varietal improvement comes to a halt.

You will not find any trait- or utility-patented varieties in the Fedco catalog because such patents are against our ethics. Free the seed! Use seeds in the public domain and shun utility-patented varieties. For more info see pages 3 and 4. Also see Morton's essays found at wildgardenseed.com.

Pest and Disease Remedies for Lettuce:

Pest: Aster Leafhopper (vector for Aster Yellows disease)
• Cultural controls: control perennial broadleaf weeds near lettuce plantings, plow lettuce fields immediately after harvest.

Pest: Slug
• Cultural control: avoid mulch or nearby grassy areas.
• Material control: **8741-4** Sluggo (p. 139)

Disease: Bottom Rot
• Cultural controls: rotate with grass-family green manures, plant in well-drained soil or on raised beds, more upright varieties escape infection.

Major diseases: Downy Mildew, Grey Mold, White Mold
• Cultural controls: rotation, reduce duration of leaf wetness, plant parallel to prevailing winds, use wide spacing, control weeds, use well-drained fields in spring and fall.
• Material controls: **8702** Actinovate, **8666** Milstop (both p. 137)

Key to symbols (❆ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

more LOOSE LEAF LETTUCE

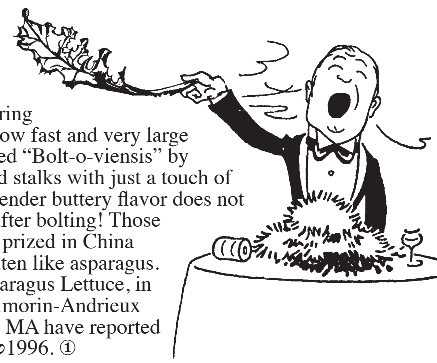
Red Salad Bowl (46 days) Compact frilly rosettes of spectacular bronze-red oakleaves. Red at tips and on young growth, green at the base of the leaves. Nice buttery flavor. One of our most popular lettuces. A staple mesclun ingredient. Grows quite large in cool weather, but prone to bitterness and bolting in heat. Withstood outdoor temperatures of 14° double-covered under row cover. Some warm-temperature germination tolerance. Introduced in 1955. Resists TB.

Red Salad Bowl ②

2728 ***A***: *1g, $1.90* ***B***: *4g, $2.40* ***C***: *14g, $3.30*
D: *28g, $4.00* ***E***: *112g, $7.00* ***K***: *448g, $18.00*
L: *5#, $82.00*

Red Salad Bowl - Organic Improved stock features darker, more vibrant leaves and enhanced PM resistance. ③

2729 ***A***: *1g, $2.00* ***B***: *4g, $3.20* ***C***: *14g, $6.00*
D: *28g, $8.00* ***E***: *112g, $18.00* ***K***: *448g, $56.00*
L: *5#, $236.00*



Cracoviensis - Organic (47 days) CR's absolute favorite of all the lettuces Seed Savers curator M. Schultz shared. Distinct in size, shape and color, Cracoviensis is where the red meets the green, making a dazzling twisting rosette with heavy purple accents towards the center. Recommended for spring and fall culture, the plants grow fast and very large (14–16") in cool temps. Called "Bolt-o-viensis" by Scott Paquin, it sends up seed stalks with just a touch of heat. No matter: the leaves' tender buttery flavor does not give way to bitterness even after bolting! Those thick fleshy bolted stems are prized in China where they are peeled and eaten like asparagus. Listed as a distinct type, Asparagus Lettuce, in The Vegetable Garden by Vilmorin-Andrieux (1885). Customers in NJ and MA have reported success overwintering it. ❧1996. ①

2731 ***A***: *1g, $2.40* ***B***: *4g, $5.30*
C: *14g, $8.40* ***D***: *28g, $15.00* ***E***: *112g, $55.00*

Red Sails - Organic (49 days) This 1985 AAS winner has become synonymous with red leaf lettuce. An attractive large plant with purplish red-splashed rosettes serrated with bubbled frills, Red Sails delivers lightly crunchy lobes with good melting texture. Ideal for home use and wholesale markets. Red Sails is slow to become bitter or bolt, even in heat. Reaches full size at 12–16", but can be harvested at 10" for a "one-cut" type head. Handle with care, as brittle midribs break easily during washing and packing. Highest rated of 13 lettuces for vigor in OSU trial. ①

2761 ***A***: *1g, $2.60* ***B***: *4g, $4.40* ***C***: *14g, $8.00*
D: *28g, $12.00* ***E***: *112g, $36.00*

Australian Yellow - Organic (50 days) In our trial the opalescent yellow-green leaves showed rapid growth yet were still holding their quality on July 19 when Waldmann's had bolted. Glossy yellow in the early stages, seedlings become more green as they mature, with the crinkly quality of a spinach and a sweet taste augmented by the barest hint of bitter. Frank Morton's strain is the best we have found. A worthy émigré from Down Under. ①

2766 ***A***: *1g, $2.60* ***B***: *4g, $6.40* ***C***: *14g, $13.00*
D: *28g, $22.00* ***E***: *112g, $72.00*

Waldmann's (50 days) *Dropped for slow sales.*

Hyper Red Rumple Waved - Organic (50 days) If you are drawn to really deep red lettuces, consider Hyper Red. Selecting from a cross between Valeria, a very red cold-tolerant lollo rosso, and Wavy Red Cos, an undulating savoyed red romaine, Frank Morton bred Hyper to accentuate pigmentation and ruffling. The striking result tastes good with a pleasing texture. Holds for a while in July before succumbing to heat. Good cold tolerance. No warm-temperature germination tolerance. Resistant to X, SC, DM and TB. **OSSI** Ω ①

open source seed initiative

2773 ***A***: *1g, $3.20* ***B***: *4g, $8.00* ***C***: *14g, $16.00*
D: *28g, $24.00* ***E***: *112g, $90.00*

New Red Fire - Organic (51 days) Fire has gained a well-deserved popularity with commercial growers. Has Sails' characteristic ruffled leaves, though slightly lighter coloration, and good size. Has been among the last to bolt, lasting as late as July 29. Also quite cold-hardy. Tender sweet flavor with almost no bitterness. Resists BOR, DM, TB. ①

2775 ***A***: *1g, $2.50* ***B***: *4g, $5.00* ***C***: *14g, $11.00*
D: *28g, $17.00* ***E***: *112g, $50.00*

Slobolt (53 days) Slow early growth is the key to Slobolt's success as a summer lettuce. A 12–14" Grand Rapids-type with much lighter green leaves than Waldmann's, Slobolt often will hold well into July. Slobolt is versatile: one grower in NY reported good results growing it in winter under lights as well as tightly spaced in his summer garden. Introduced 1946 by USDA. Showed some ability to germinate in warm temperatures. ②

2783 ***A***: *1g, $2.60* ***B***: *4g, $4.50*
C: *14g, $8.80* ***D***: *28g, $16.00* ***E***: *112g, $50.00*

Red Tinged Winter - Organic (60 days) A leaf lettuce for three seasons introduced by Beth and Nathan Corymb of Meadowlark Hearth who selected and multiplied it from heirloom seed they brought from Europe. The lofty loose 10–12" compact heads with slightly ruffled leaves are green in their centers and lightly tinged with bronze toward the leaf tips. Can be harvested at 8" for "one-cut" salad leaf. Red Tinged was a hardy survivor in staffer Roberta Bailey's overwintering test, and Hildy Danforth of Shelburne, NH, said that "it was the best I've seen in my fall greenhouse and I've grown every lettuce with the word 'winter' in its name." Sow to mature in fall or late fall, or start in fall to overwinter and rally for major production in spring. Turns quite bitter in heat, so not for summer production.❄ ①

2786 ***A***: *1g, $2.60* ***B***: *4g, $6.30* ***C***: *14g, $11.00*
D: *28g, $16.00* ***E***: *112g, $60.00*

Merlot - Organic (32 days baby, 60 mature) William Woys Weaver correctly predicted that this lettuce would become a classic. Always a standout in our trials, its intense burgundy color the richest we have ever seen. This merlot adds as much to your baby salad mix as a good wine adds to your dinner, providing color, excitement and full-bodied flavor. Slow to grow, slow to bolt, plants never achieve much size or density, but are ideal for the baby-leaf trade. Not for mature-head production, so may be spaced closely. According to Mountain Dell Farms (growing at 1400' in the Catskills), can stand outside temperatures to 14° when double-covered. Has shown good resistance to BOR in challenging wet Julys. Germinates poorly in warm temperatures. Also resistant to X, DM, SC and TB. ❄ ①

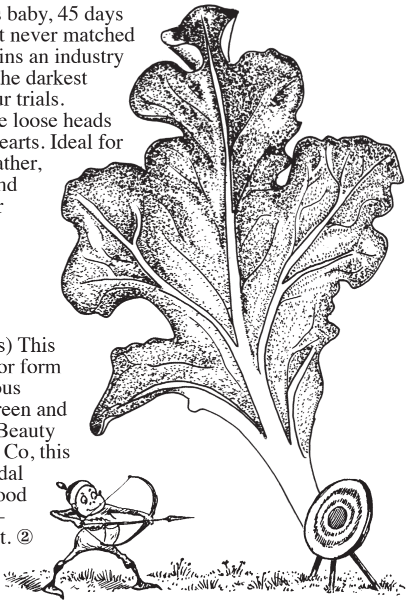
2789 ***A***: *1g, $3.20* ***B***: *4g, $8.00* ***C***: *14g, $15.00*
D: *28g, $24.50* ***E***: *112g, $90.00*

De Morges Braun - ECO (64 days) This bronze beauty is noteworthy among the hundreds of lettuces we've grown for its shimmery color and smooth buttery texture. Grows upright like a romaine as it matures, the center forming a green contrast to the pink outer leaves. Slow grower, never gets bitter and is one of the last to bolt. We owe our awareness of it to Schultz. ①

2787 ***A***: *1g, $2.40* ***B***: *4g, $5.00* ***C***: *14g, $9.00*
D: *28g, $14.00*

OAKLEAF

A looseleaf lettuce more tender and sweet than its namesake.



Oscarde - Organic (30 days baby, 45 days mature) This often imitated but never matched classic miniature oakleaf remains an industry standard. Deep red leaves are the darkest of their type we've found in our trials. Growing low to the ground, the loose heads shade to bright green at their hearts. Ideal for greenhouse culture in cold weather, also good outdoors in spring and fall. May be cut for mesclun or baby leaf. Resists DM. ❄ ①

2788 ***A***: *1g, $3.80*
B: *4g, $11.00*
C: *14g, $28.00*
D: *28g, $50.00*

Bronze Arrowhead (46 days) This Arrowhead scores a bullseye for form and color, developing a gorgeous oakleaf rosette in a dance of green and bronze. Introduced as Bronze Beauty by the Germania Seed & Plant Co, this bronze was given a bronze medal by the AAS judges in 1947. Good for mesclun and cut-and-come-again culture. Very slow to bolt. ②

2719 ***A***: *1g, $2.30*
B: *4g, $5.30*
C: *14g, $8.40*
D: *28g, $14.00*
E: *112g, $48.00*

Antares - Organic (48 days) A shimmery pink and bronze oakleaf growing vigorously to a magnificent 14–16" size. The extra-frilled finely cut bright leaves are colorful and tender, not bitter even in early July. Antares puts on a terrific show especially when started indoors, transplanted early in spring and allowed ample space. Bred by Frank Morton of Wild Garden Seed in Oregon out of a combination of **2722** Salad Bowl (p. 37) and **2865** Rouge d'Hive (p. 41). **OSSI** Ω ①

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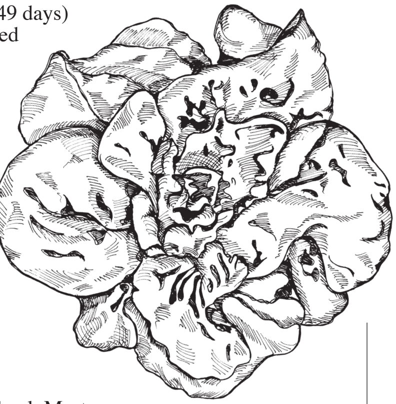
2738 ***A***: *1g, $2.70* ***B***: *4g, $6.50*
C: *14g, $12.00* ***D***: *28g, $22.00*
E: *112g, $66.00*

Ω **Independent plant breeders**, continuing a long tradition of adapting varieties to local tastes and conditions, are the backbone of culture. For the most part eschewing plant patents, their work is their reward. Fedco is committed to buying seed from small breeders to give economic support to their work. Though we can find cheaper seed elsewhere, we prefer not to compromise on quality or ethics. We hope you agree—by purchasing seed with the Ω symbol.

Blushed Butter Oaks - Organic (49 days) This 1997 Fedco introduction developed by Frank Morton is a compact oakleaf butterhead. Its 12" mounded upright form sports a delightful combination of pink and green rounded oakleafs with tenderness and buttery taste. Blushed Butter Oaks is a hit with everyone who sees and samples it in our trials. Better-than-average frost tolerance. **OSSI** ☙1997. Ω ①



2764 *A: 1g, $2.90*
B: 4g, $7.50
C: 14g, $15.00
D: 28g, $24.00
E: 112g, $90.00

Elf Ears Oak - Organic (50 days) Frank Morton made Elf Ears Oak as small as the vigorous oakleaf-type lettuces will likely allow. The bright green leaf is lightly savoyed with deeply cut lobes, crowned in extra-extended narrow tips. With compact form, dense centers and elven oak leaves held upright, easy salad cutting or clean full-head presentation come naturally. In our hot and steamy 2018 lettuce trial, we found uniform Elf Ears' leaf sweet, tender and buttery, while full-size kin Italienischer is more crisp with slightly better heat tolerance. Selected for DM resistance. **OSSI** Ω ①

2763 *A: 1g, $3.70* *B: 4g, $11.00* *C: 14g, $32.00*
D: 28g, $52.00 *E: 112g, $180.00*

Lingua di Canarino (50 days) *Availability of these canaries' tongues was uncertain at press time*. Please check our website.

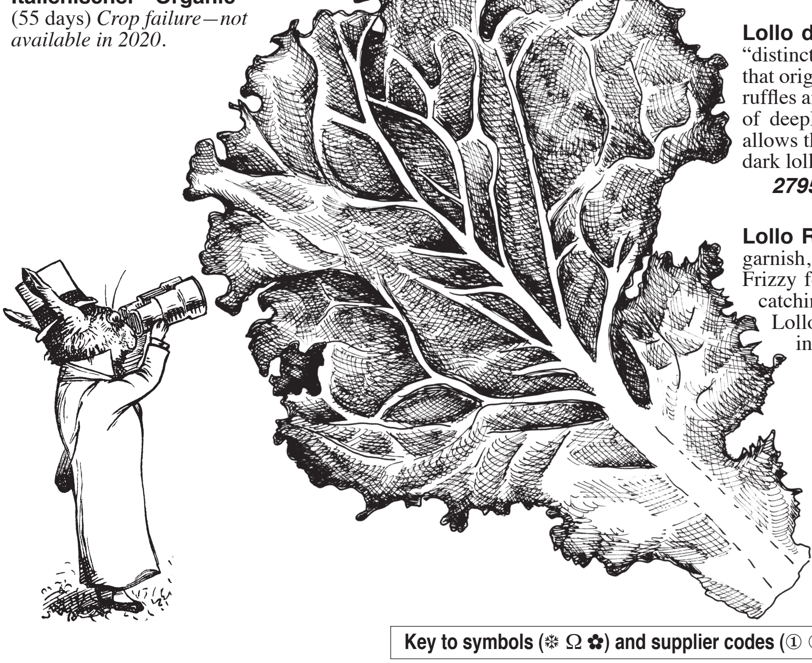
Merlox Red Oak - Organic (53 days) Frank Morton's first release of his "Merlox variations" combines the ultra-dark pigmentation of **2789** Merlot (p. 38) with the superior flavor of larger Emerald Oak. This uniform compact 10–12" oakleaf head boasts showy deep maroon leaves with a hint of blanched green in their centers. Loose but upright habit makes for clean cutting in salad-leaf harvest. Known as a cool-season lettuce, yet in the dry early heat of summer 2018 we found no bitterness at all—unique for such bold coloration. Good for winter culture as well: left outdoors in central Maine with no row cover, mulched only by a generous snow cover, two-thirds overwintered and were ready to eat in early May. Bred with strong horizontal resistance to DM and SC. **OSSI** ❆ Ω ①

2781 *A: 1g, $3.60* *B: 4g, $11.00* *C: 14g, $28.00*
D: 28g, $48.00 *E: 112g, $175.00*

Flashy Green Butter Oak - Organic (54 days) Frank Morton officiated the spectacular marriage of Emerald Oaks' quintessential oakleaf form with the speckling of Flashy Trout Back. The result's rich lime-green leaves with pronounced but variable dark speckles are not only winsome but also amazingly tasty and crunchy with delightful buttery texture. Flashy's compact habit lends it to "mini" culture, and its excellent performance in cool weather and heat confirms its status as masterpiece. **OSSI** Ω ①

2784 *A: 1g, $3.00* *B: 4g, $7.00*
C: 14g, $13.50 *D: 28g, $22.00*
E: 112g, $70.00

Italienischer - Organic (55 days) *Crop failure—not available in 2020.*



DEER TONGUE

Deer tongue leaf lettuce has broad dense succulent leaves which taper to a point.

Green Deer Tongue - Organic (48 days) Also known as Matchless, this venerable heirloom goes back to the 1740s. Characteristic thick green pointed leaves radiating from a compact center. Slow to bolt. Has a rich nutty flavor that doesn't turn bitter. ①

2740 *A: 1g, $2.20*
B: 4g, $5.00
C: 14g, $9.00
D: 28g, $14.00
E: 112g, $53.00

Really Red Deer Tongue - Organic (48 days) We revered Red Deer Tongue for its history and its classic leaf shape, but not for its pallid color and vulnerability to disease. Morton combined it with his own **2773** Hyper Red Rumple Waved (p. 38) to develop a series of Really Red breeding lines. Morton then re-selected for deep red color, white-green contrasting veins and pointed deer-tongue leaves for a variety with much less variation, a stunning improvement over the original Red Deer Tongue. From Hyper comes heightened resistance to SC, DM, X and TB. Though not among the best summer lettuces, RRDT stands heat better than its forebears and does not bolt as readily. **OSSI** ☙2005. Ω ①

2744 *A: 1g, $2.60* *B: 4g, $6.60* *C: 14g, $12.00*
D: 28g, $20.00 *E: 112g, $70.00*

Les Oreilles du Diable (Devil's Ears) - Organic (50 days) Starlike rosettes of tasty glossy leaves are deeply tinged with burgundy for a shimmery appearance. We enjoy its nutty texture and bitter-free flavor. One of the last to bolt. A standout in our plots where we greatly preferred it to Red Deer Tongue for its color and good heat tolerance. One of the lovely rare treasures once maintained by the Abundant Life Seed Foundation. ①

2767 *A: 1g, $2.80* *B: 4g, $6.60* *C: 14g, $10.00*
D: 28g, $18.00 *E: 112g, $66.00*

Red-Eared Butterheart (56 days) *Didn't capture enough hearts; dropped*.

LOLLO ROSSO

Forms a fully frizzy tight mound of leaves that lend loft and flair to mixes.

Revolution - Organic (48 days) *Crop failure. Not available in 2020.*

Dark Lollo Rosso - Organic (53 days) A much darker version of **2796** Lollo Rosso, holding its color even under row covers, in tunnels or during prolonged cloudy periods. Our trialer describes it as "fat, curly and very red." Adds color, texture and loft to baby leaf mixes. Begin snipping after only four weeks. Develops bitterness if allowed to size up in heat. ②

2793 *A: 1g, $2.40* *B: 4g, $5.00* *C: 14g, $8.40*
D: 28g, $12.00 *E: 112g, $34.00*

Lollo di Vino - Organic (56 days) Its originator Frank Morton calls it a "distinctive little frizzlehead." Di Vino stands out for its dark purple color that originated in its Merlot parentage. This compact beauty has ruffles and curls of vintage lollo, but a mildness uncharacteristic of deeply pigmented lollos. Its distinctive lack of bitterness allows the harvest to extend longer into summer than any other dark lollos we have tried. **OSSI** Ω ①

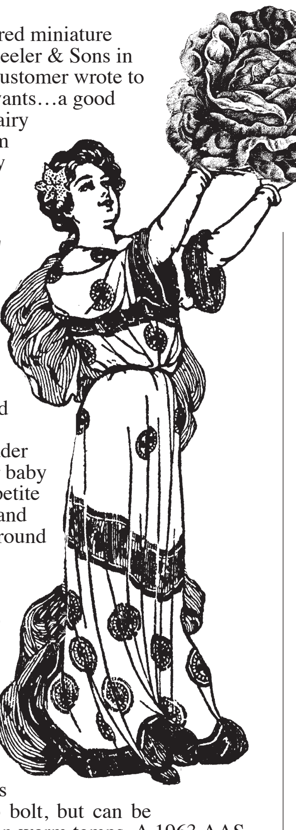
2795 *A: 1g, $3.00* *B: 4g, $7.60* *C: 14g, $19.00*
D: 28g, $34.00 *E: 112g, $120.00*

Lollo Rosso (58 days) For loft and texture, used in salad mixes and as a garnish, this ornamental delight has been embraced by gourmet restaurants. Frizzy foliage is light red on top, light green at base, melding into an eye-catching display. Very cold hardy. This strain is not as colorful as the two Lollos above, but it was milder, less bitter, and slower to bolt than others in our trials. ❆ ③

2796 *A: 1g, $2.20* *B: 4g, $4.00*
C: 14g, $7.00 *D: 28g, $11.00*
E: 112g, $30.00

> More and more, Fedco is showing itself to be ahead of the curve. And thanks for crediting breeders!
> – Diane Dorfer, Mansfield Center, CT

BUTTERHEAD



Tom Thumb (46 days) This venerable and adored miniature butterhead was introduced in England by H. Wheeler & Sons in 1858. It came to the States ten years later. One customer wrote to Burpee's in 1894, "It is just what the gardener wants…a good dwarf variety, a quick grower." Heron calls it "fairy cabbage." In the dewy cool of spring or fall, Tom Thumb forms its extra-early tightly bunched tiny head. With sweet buttery light-medium green outer leaves and creamy white crunchy centers, it's tasty and attractive for early markets. Can be closely spaced as the heads seldom exceed 5" in diameter. Please do not attempt to grow it in warm temps—it turns into an ugly toad! ②

***2803** **A**: 1g, $1.90 **B**: 4g, $2.40 **C**: 14g, $3.60 **D**: 28g, $5.00 **E**: 112g, $8.00 **K**: 448g, $20.00*

Bronze Mignonette (46 days) Charming us again in 2018, this small 8" ruffled bronze-tinged butterhead continues to captivate in our trials. Slightly larger than Tom Thumb and with a broader tolerance of warm temps, it's an ideal choice for baby vegetable enthusiasts. Its silky buttery leaf and petite stature assures that you can fit it into your farm and garden plans, and into your salads. Introduced around 1898. ②

***2805** **A**: 1g, $1.90 **B**: 4g, $2.40 **C**: 14g, $3.60 **D**: 28g, $5.00 **E**: 112g, $8.00 **K**: 448g, $24.00*

Carmona - Organic (50 days) *Crop failure; not available in 2020.*

Buttercrunch (50 days) Our trials evaluator calls this 8–12" butterhead "the cucumber of lettuce, smooth and soothing with a green refreshing flavor." Dark green outer leaves with creamy center heart. Bloodnick praises its "sweet, succulent broad mid-ribs." Slow to bolt, but can be prone to bottom rot. Some ability to germinate in warm temps. A 1963 AAS developed by Dr. G.L. Raleigh at Cornell. Always our best-selling lettuce. ④

***2811** **A**: 1g, $1.90 **B**: 4g, $2.40 **C**: 14g, $3.60 **D**: 28g, $5.00 **E**: 112g, $8.00 **K**: 448g, $18.00*

North Pole - Organic (51 days) We don't wait for Santa Claus—we have a seed grower out west producing this popular extremely cold-hardy butterhead for us. Protected only by snow cover, all of Donna Dyrek's plants survived a mild Zone 4 Maine winter outdoors. Can be set out under cover 2–3 weeks before first frost to aim for 4–6" plants at the onset of winter weather. Will resume vigorous growth as days grow longer, tolerating spring frosts. Elegant lime-green 6–8" buttery heads, sweet and tasty. Not for summer—it will bolt and turn bitter, but suited for the other seasons. ❄ ①

***2814** **A**: 1g, $2.60 **B**: 4g, $6.60 **C**: 14g, $12.60 **D**: 28g, $22.00 **E**: 112g, $48.00*

Optima - Organic (52 days) Released by French seedhouse and breeder Vilmorin in 1995. This dark green uniform Nancy-type butterhead caught lettuce master Frank Morton's eye with its large plant and head size, and workhorse performance. We were equally wowed as slow-bolting Optima held its lush looks and high quality in 2018's hot and steamy lettuce trial. Optima's juicy sweetness and silky texture could truly define a new category: Tenderheads! High resistance to DM, BR, and TB. ①

***2815** **A**: 1g, $2.80 **B**: 4g, $7.50 **C**: 14g, $20.00 **D**: 28g, $30.00 **E**: 112g, $102.00*

Winter Marvel - Organic (52 days) Polly Gottesman of Pumpkin Ridge Gardens, North Plains, OR, wrote, "Here in Zone 7 Winter Marvel is barnone the best overwintering lettuce we grow…We start harvesting outer leaves for salad mix in December…they continue producing without bolting through March." A large fancy light green butterhead recommended for fall production and overwintering where the climate permits. Grows rapidly, but bolts readily in summer heat. If you are sowing in spring for an early summer butterhead, the harvesting window is very narrow. An old European variety. Do not sow in soil temperatures over 80°. ❄ ①

***2816** **A**: 1g, $2.60 **B**: 4g, $6.00 **C**: 14g, $9.00 **D**: 28g, $14.50 **E**: 112g, $52.00 **K**: 448g, $175.00*

Pirat - Organic (55 days) From Germany, also known as Sprenkel and Brauner Trotzkopf. Elegant green 12" butterhead with light brown pebbling. Heads like loose large softballs at maturity. Delicious smooth taste with creamy texture, and holds well except in prolonged wet spells. Descended from Merveille des Quatre Saisons but much more bolt resistant. ①

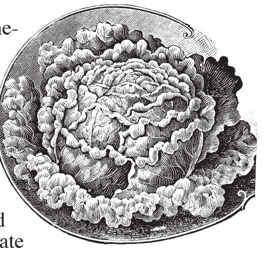
***2828** **A**: 1g, $2.80 **B**: 4g, $7.20 **C**: 14g, $12.00 **D**: 28g, $21.00 **E**: 112g, $72.00*

Speckled Amish - Organic (55 days) An ornamental bibb of spectacular beauty, its apple-green leaves are variably splashed with maroon flecks, a stunner whether in your garden or in your salad. Small firm mild-flavored 10" heads shaped like Merveille des Quatre Saisons, centers with soft leaves blanching creamy yellow. Mennonites brought seed in a covered wagon from Lancaster County, PA, to Ontario in 1799. Introduced into commerce in 1880 as Golden Spotted. Frank Morton has been selecting to alleviate TB. ①

***2831** **A**: 1g, $2.60 **B**: 4g, $6.50 **C**: 14g, $13.00 **D**: 28g, $22.00 **E**: 112g, $70.00*

Sweet Valentine - Organic (56 days) A real sweetheart of a lettuce, Valentine combines magnificent beauty with mild sweet taste. Beginning as a large spreading bronzed butterhead with rounded veined leaves, it matures into a romaine shape. Has been very slow to bolt even in hot dry conditions. Flavor is more delicate and less bitter before it assumes romaine configuration. ①

***2834** **A**: 1g, $3.00 **B**: 4g, $7.00 **C**: 14g, $13.00 **D**: 28g, $20.00*



Nancy - Organic (58 days) The best one-word description of this elegant butterhead rhymes with its name—and it's neither antsy nor chancy. This big Boston butterhead has thick medium-green leaves that make a very tight well-developed heart. Smooth and buttery with a delectable taste and texture. It holds well in the field, a standout both for commercial growers and home gardeners. Though usually slow to bottom rot, it did struggle with severe BOR in 2013. Intermediate resistance to LMV. ①

***2841** **A**: 1g, $2.40 **B**: 4g, $5.60 **C**: 14g, $10.00 **D**: 28g, $15.00 **E**: 112g, $52.00*

Kagraner Sommer (58 days) Elegant light green 10–12" butterhead of exceptional tender succulence, especially given the warm early-to-mid July slot when it matures. "For years has been our main summer lettuce. A great heat resister," lauded Anne Elder. The satiny heads are wound less tight, but are lusher in flavor than Buttercrunch. In our trials, the secret snackers always wish we had planted just a few more. ②

***2839** **A**: 1g, $1.80 **B**: 4g, $2.60 **C**: 14g, $5.60 **D**: 28g, $8.00 **E**: 112g, $18.00*

Mini-heads: Mini lettuce heads are increasingly popular for wholesale accounts and winter harvests. Home gardeners with a succession of minis can reap quick single salads. You'll find minis across the cold-hardiness and heat-tolerance spectrum. We've held these little class acts up against the expanding utility-patented mini-types (see sidebar p. 37) and found comparable or better performance. While we do not intend to "go big" on tiny types, we add excellence as we find it. Here's what we have so far:

Oscarde oakleaf
Tom Thumb butterhead
Bronze Mignonette butterhead
Pandero romaine
Jadeite romaine
Gildenstern iceberg

ROMAINE

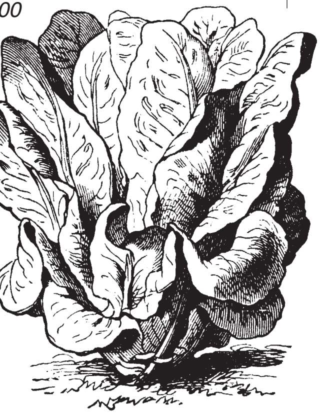
Also called Cos. Large crisp-stemmed leaves wrap into a tall head with buttery but snapping blanched centers. Great performance in cold and heat.

Pandero - Organic (44 days baby, 63 days mature) The mini-romaine runaway star of 32 lettuce varieties in CR's 2013 trial, this very deep purple version of a compact Winter Density–type develops pronounced color early and keeps it through its entire growth cycle. Our taste tasters rated it sweet, mild and juicy with good crunch. Best sowed early and harvested small for salad mix or baby romaine because it will bolt in heat. Planting for fall allows it to mature its striking self-contained 6" head. Cold-tolerant, suffered only sparse BOR during recent wet Junes. ①

2852 ***A**: 1g, $3.60* ***B**: 4g, $10.00* ***C**: 14g, $22.00*
***D**: 28g, $38.00*

Blushed Butter Cos - Organic (49 days) A combination butterhead-romaine with ruffled savoyed leaves dappled in an attractive palette of reds and greens. Butter Cos was judged to be #1 for taste out of more than 100 lettuces the first time we tried it, years ago. Remarkably crisp for such a buttery taste. **OSSI** ☘1997. Ω ①

2854 ***A**: 1g, $2.70* ***B**: 4g, $6.60*
***C**: 14g, $14.00* ***D**: 28g, $24.00*
***E**: 112g, $80.00*



Jadeite - Organic (50 days) Fresh from Frank Morton's legendary lettuce breeding program! True to name, mini-romaine Jadeite's matte apple-green rounded leaf and graceful small vase form looks carved. It practically glowed from within with pristine health through our hot and humid 2018 lettuce trial. With a delicate crunch, a dash of juicy sweetness, and touch of buttery texture to the blanched yellow hearts, Jadeite's small stature yields artisan-quality flavor. While not as furnace-proof as full-sized romaines, Jadeite has good heat tolerance and very good cold hardiness, allowing closely spaced successions through many seasons. **OSSI** Ω ①

2855 ***A**: 1g, $3.50* ***B**: 4g, $10.00* ***C**: 14g, $25.00*
***D**: 28g, $40.00* ***E**: 112g, $140.00*

Mayan Jaguar - Organic (51 days) Although we've grown a lot of trendy splotched lettuces in the last decade, this cat's mottled maroon spots on dark green ruffled leaves win the blue ribbon for most vibrant color definition. And it has great flavor, too, sweet juicy veins, blushed pink hearts and what breeder Frank Morton refers to as "that bone crusher romaine crunch!" It gets off to such a quick start, yet doesn't grow very large or thrive in intense heat, making Jaguar a great candidate for early salad or mesclun. Fierce colors, snarly crunch, but really a pussycat at heart. **OSSI** Ω ①

2856 ***A**: 1g, $4.00* ***B**: 4g, $11.00* ***C**: 14g, $24.00*
***D**: 28g, $42.00*

Forellenschluss (56 days) Also known as Freckles or Trout Back, an heirloom from Arche Noah. An absolutely gorgeous romaine with the delicate taste and texture of a butterhead, distinguished for its deep green leaves flecked with wine-red splotches. Lately we've seen increasing variation in the coloration and degree of splotching. The best-tasting of the 50 lettuces in our 1998 trial. Very buttery tender leaves may be harvested at 4–6" for mesclun or allowed to grow full size for maximum ornamental benefit. William Woys Weaver traced Forellenschluss back to 1793; it was a dwarf variety of Spotted Aleppo developed in Germany. More upright and cup-shaped than **2831** (p. 40) Speckled Amish, with better heat tolerance. Some warm-temperature germination tolerance. ②

2857 ***A**: 1g, $2.20* ***B**: 4g, $4.50* ***C**: 14g, $9.00*
***D**: 28g, $14.00* ***E**: 112g, $26.00*

Winter Density (60 days) Also known as Craquerelle du Midi, a French heirloom from the 19th century. Is it a bibb or a romaine? Any way you look at it, its thick tender dark green leaves make superb eating. Starts out looking like a bibb, then wrapper leaves fold tightly, forming a head like a romaine when mature. Combines the substance of romaine with the tender succulence of bibb. No warm-temperature germination tolerance. ❄ ②

2849 ***A**: 1g, $2.10* ***B**: 4g, $3.60* ***C**: 14g, $5.00*
***D**: 28g, $7.00* ***E**: 112g, $12.00* ***K**: 448g, $32.00*

Majestic Red (60 days) *Didn't awe you. Dropped for slow sale.*

Jericho - Organic (60 days) Has become the classic summer romaine for warm regions. If the walls are tumbling down on your summer lettuce, try Jericho, bred in Israel's hot dry climate. An imposing romaine, under fertile conditions it can grow dense hefty 2' tall heads of light green sword-shaped upright leaves. Yet it remains crisp, juicy and unusually sweet, most years resisting TB or bolting well into July. Remains attractive even in bad years and tolerates BOR. ①

2861 ***A**: 1g, $2.50* ***B**: 4g, $6.00* ***C**: 14g, $11.00*
***D**: 28g, $19.00* ***E**: 112g, $50.00*

Better Devil - Organic (60 days) Frank Morton's Devil is finally gaining the customer appreciation it deserves. A really superior romaine lettuce, standing out in many of CR's trials. When it romaines, it sends up gorgeous purple ruffled center flag leaves. Its large veins, green tinged with purple, are crunchy, juicy and sweet with a hint of bitterness. The texture of its tapered cos-like leaves is chewy and pleasant. Recommended for early spring planting, resisted BOR and showed a moderate ability to withstand heat. Plants compact, uniform and dazzling even when crowded. **OSSI** Ω ①

2862 ***A**: 1g, $2.60* ***B**: 4g, $7.20* ***C**: 14g, $13.00*
***D**: 28g, $24.00*

Rouge d'Hiver (65 days) The true Rouge d'Hiver, black-seeded, with much deeper red outer-leaf coloration than Brune d'Hiver with which it is sometimes confused. Inner leaves are green with deeply bronzed tip, an attractive color combination. Forms a semi-open romaine head with excellent flavor, especially in cold weather. Develops pronounced bitterness in summer heat. Hiver means 'winter' and Rouge is more suitable for fall production or overwintering than for summer. French 1840s heirloom listed by Vilmorin in 1885. Resists TB. ❄ ②

2865 ***A**: 1g, $1.90* ***B**: 4g, $2.50* ***C**: 14g, $3.00*
***D**: 28g, $5.00* ***E**: 112g, $9.00* ***K**: 448g, $24.00*

Plato II - Organic (65 days) A lettuce fit for a philosopher-king, Plato sets a high standard for sweet taste in a romaine, holding its quality well into summer without bitterness, bolting or any tendency to TB. Morton also found it more resistant to DM and SC than any of the other green romaines in his plot. Attractive dark green slightly ruffled heavily veined leaves. ①

2866 ***A**: 1g, $2.60* ***B**: 4g, $6.40* ***C**: 14g, $12.00*
***D**: 28g, $20.00* ***E**: 112g, $50.00*

Olga - Organic (66 days) Elegant lime-green Olga won our hearts in our 2006 lettuce trials. Big upright 8" oval heads with big hearts, big flavor and slightly fringed leaves. So sweet, crisp and buttery that Morton thinks she must have some butterhead in her background. Stood considerable heat before developing slight TB and bitterness in August. ①

2874 ***A**: 1g, $2.80* ***B**: 4g, $6.60* ***C**: 14g, $14.00*
***D**: 28g, $24.00*

Marshall - Organic (67 days) We first discovered Marshall in the Territorial catalog: "Gazing into the heart of this romaine is like falling into a burgundy abyss." As Merlot is to looseleafs so Marshall is to romaines, the standard for color intensity. Deep dark red leaves with contrasting pink veins, and a smidgen of green in the center. Tall upright 8" heads. Leaves smooth and succulent, crisp and chewy, lacking the bitterness usually associated with such coloration. ①

2877 ***A**: 1g, $2.80* ***B**: 4g, $6.20* ***C**: 14g, $11.00*
***D**: 28g, $18.00*

Parris Island Cos (68 days) The standard market romaine developed by Clemson University and the USDA in 1952. Upright 8–9" heads fold inward to form compact centers. Interior greenish-white. Resistant to TB and bolting, even in heat. Irrigation improves its texture. Cos is an island in the Dodecanese region of Greece where this type of lettuce was named. Parris Island is in South Carolina. ②

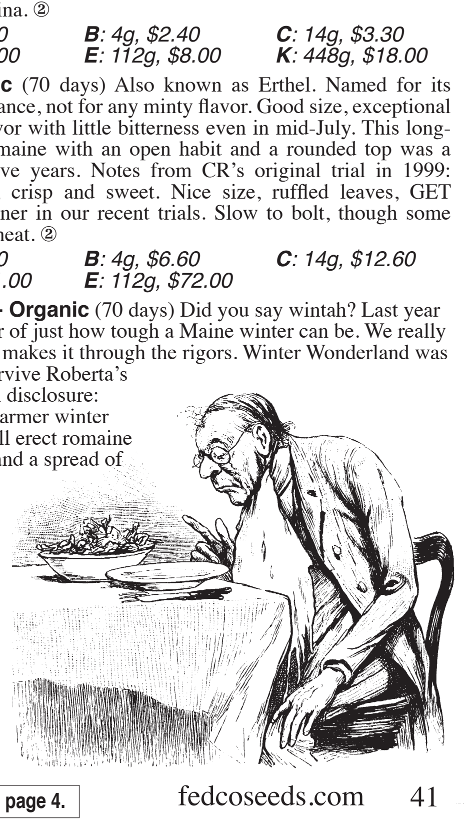
2879 ***A**: 1g, $1.90* ***B**: 4g, $2.40* ***C**: 14g, $3.30*
***D**: 28g, $5.00* ***E**: 112g, $8.00* ***K**: 448g, $18.00*

Crisp Mint - Organic (70 days) Also known as Erthel. Named for its ruffled mint-leaf appearance, not for any minty flavor. Good size, exceptional crispness and sweet flavor with little bitterness even in mid-July. This long-standing dark green romaine with an open habit and a rounded top was a standout two consecutive years. Notes from CR's original trial in 1999: "Lovely and delicious, crisp and sweet. Nice size, ruffled leaves, GET THIS!!" It's still a winner in our recent trials. Slow to bolt, though some tendency to TB in July heat. ②

2883 ***A**: 1g, $2.70* ***B**: 4g, $6.60* ***C**: 14g, $12.60*
***D**: 28g, $21.00* ***E**: 112g, $72.00*

Winter Wonderland - Organic (70 days) Did you say wintah? Last year we got another reminder of just how tough a Maine winter can be. We really appreciate a lettuce that makes it through the rigors. Winter Wonderland was one of the lettuces to survive Roberta's over-wintering test. Full disclosure: that test occurred in a warmer winter than the last one. A 2' tall erect romaine with dark green leaves and a spread of about 1', Wonderland is slow to bolt in heat but we recommend it for farming the dark side of the calendar. White seed. ❄ ①

2886
***A**: 1g, $2.40*
***B**: 4g, $5.40*
***C**: 14g, $9.50*
***D**: 28g, $15.00*
***E**: 112g, $55.00*



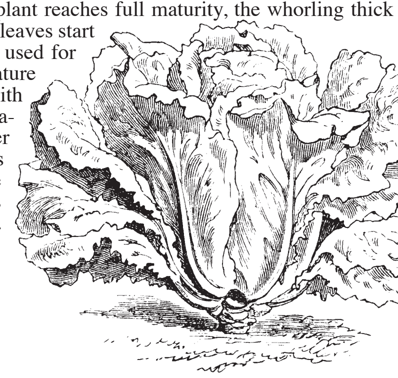
BATAVIAN

Also called **Summer Crisp** or **French Crisp**, Batavians combine the crispness and heat tolerance of Iceberg with the open habit, sweetness and tenderness of leaf types. Vigorous growth, large stature, great field holding, slow bolting and wonderful flavor make this class an excellent summer harvest choice in the fluctuant northeastern climate. Good hot-weather germination.

Cardinale - Organic (48 days) This alluring wine-red European batavian had disappeared from commerce for a while before Frank Morton rescued it. Cardinale is a classic both for baby leaf and hefty 14–16" full head production. With elements of butterhead and romaine in habit and flavor, upright but open rosettes fold together like a romaine in the center at full maturity. Shiny broad lightly blistered fringed red leaves on the outside, green toward the center with crisp and juicy ribs. Survived temperatures in the teens in Janine Welsby's unheated Ohio greenhouse under a double layer of row cover topped with old bed sheets. ①

2905 ***A**: 1g, $3.20*
***B**: 4g, $8.40*
***C**: 14g, $14.50*
***D**: 28g, $24.00*
***E**: 112g, $88.00*

Concept - Organic (51 days) The Concept here is a combination of a batavian with a romaine. As the plant reaches full maturity, the whorling thick succulent juicy medium-green leaves start to close up at the top. Can be used for baby lettuce or allowed to mature into a vase-like bunch. As with most batavian types, it is relatively tolerant of hot weather and rarely bitter. "Concept is the only lettuce I can be sure of in Florida summers," relates Marilynn Marcks of Port St. Lucie, FL. ①



2908 ***A**: 1g, $2.70*
***B**: 4g, $6.60*
***C**: 14g, $14.00*
***D**: 28g, $26.00*

Pablo (68 days) *Crop failure. Not available in 2020.*

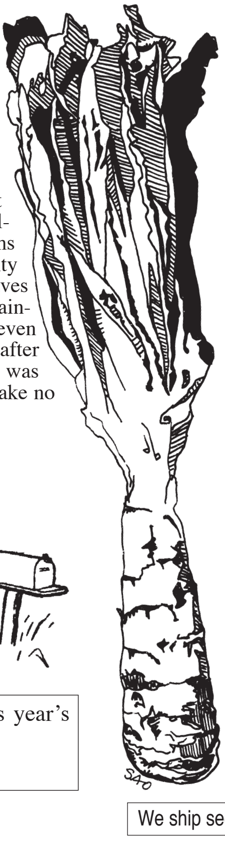
Anuenue - Organic (72 days) Its mellifluous Hawaiian name (pronounced AH-new-ee-new-ee) means 'rainbow' even though it is a uniform dark green. Anuenue doesn't look like much in June when most other lettuce is in full glory, but as the days get shorter and the heat gets stronger it really comes into its own. In late July and even early August, this 1987 University of Hawaii introduction has no peers for crispness and sweetness and never develops any bitterness. Slow growth is its secret. It remains compact as it matures, surrounding its round tightly packed heart with crisp outer leaves. Unlike most lettuces, seed will germinate at 80˚. Has shown some winter hardiness with protection. ①

2921 ***A**: 1g, $2.40*
***B**: 4g, $5.30*
***C**: 14g, $10.00*
***D**: 28g, $18.00*
***E**: 112g, $56.00*

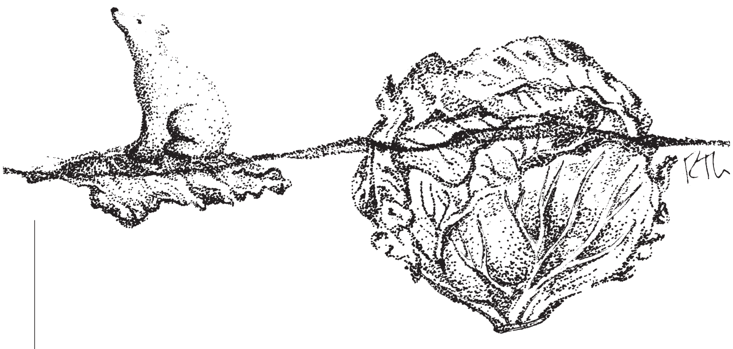
SPECIALTY LETTUCES

Balady Aswan - Organic (45 days) An ancient form of native Egyptian **celtuce** that is customarily allowed to bolt and enjoyed for its 12–14" crunchy stems with creamy flavor. Its sweet emerald-green pointy leaves make a tall rosette, taste like regular lettuce leaves without bitterness and can be harvested anytime, remaining sweet and crispy like **2731** Cracoviensis (p. 38) even after bolting. Aswan began bolting only 3–4 weeks after its June 17 transplanting. Frank Morton says celtuce was a symbol of virility in ancient hieroglyphs but we make no unsubstantiated claims for this unusual lettuce. ①

2715 ***A**: 1g, $3.10*
***B**: 4g, $9.00*
***C**: 14g, $16.00*



> My comment from last year's order made this year's catalog! Now I can die happy. Thank you!!
> – Katie Hubert, Seattle, WA



ICEBERG or CRISPHEAD

According to Vaughan's 1904 seed catalog, Iceberg takes its name from the small indentations in the leaf that constantly fill with dewdrops giving them a crystalline appearance. With its toothed and fringed light green leaf, famous crunchy juicy texture and mild sweet flavor Iceberg has become an iconic American food. Late to make mature heads, Icebergs face heat and stress with grace and tolerance—lettuce lessons for our politicians?

Gildenstern - Organic (46 days) Could this mini-iceberg be called an "ice cube"? Folded and blistered light green leaves wrap into a tight crisp whorled 4" head that easily makes a single-serving salad. This latest victory from breeder Frank Morton's Merlox derivations combines an iceberg look and juicy crunch with wonderfully smooth butterhead texture. Market growers will find uniformly early maturing but slow-bolting Gildenstern a good four-season mini-crisphead, resistant to TB, DM and SC around the calendar. **OSSI** Ω ①

open source seed initiative

2713 ***A**: 1g, $3.10* ***B**: 4g, $8.80* ***C**: 14g, $23.00*
***D**: 28g, $36.00* ***E**: 112g, $120.00*

Jack Ice - Organic (48 days) Frank Morton discovered early hardy Jack Ice in a random sample of Reine des Glaces. A head of iceberg is a treat in the summer heat, but the class is well-known for maturing at a glacial pace. Dark green 11" Jack Ice delivers a perfect uniform "headless iceberg" crispleaf early in the season, giving growers and gardeners the expected "ice" crunch and sweetness without the wait. Jack's slightly pebbled extra-toothed fringed leaf and broad-centered whorl is suited for salad-mix cuts or full head harvest. High resistance to DM and TB, slow bolting, and with overall disregard for temperature extremes. Frank describes this new "Jack of all salad trades" best: "Crisp as frost, freeze and heat tolerant, resistant to SC, great mild taste, a very good lettuce." ①

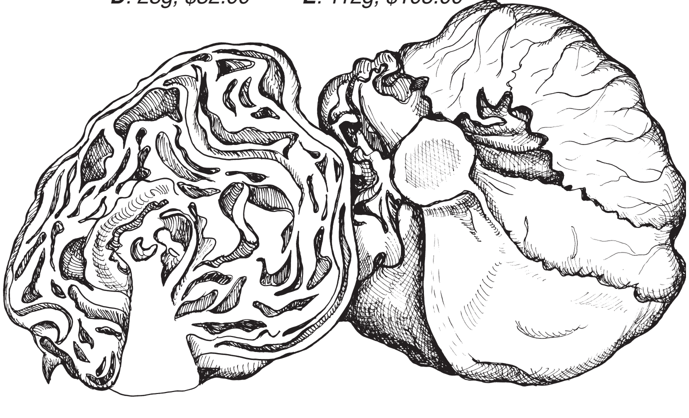
2714 ***A**: 1g, $2.50* ***B**: 4g, $6.30* ***C**: 14g, $11.00*
***D**: 28g, $16.00* ***E**: 112g, $56.00*

Red Iceberg (63 days) For burgundy exterior coloration, compact medium-sized heads, great reliability and pleasing sweet flavor, an attractive alternative to green iceberg. Interior shades to green. Heads resist getting soft and mushy in the heat for a relatively long time. ②

2922 ***A**: 1g, $2.60* ***B**: 4g, $6.50* ***C**: 14g, $12.00*
***D**: 28g, $20.00*

Crispino - Organic (60-65 days) Lettuce master Frank Morton said, "Ozzie and Harriet salad of my youth is making a comeback, and this is the backbone for it." This old-school iceberg gets right to business making 6–7" light green icy heads with nearly white hearts. Its lightly toothed and wavy leaf wraps early on a big vigorous 15–20" diameter plant, delivering a classic medium-crisp kick paired with tender juicy refreshment. In our hot humid 2018 lettuce trial, Crispino was uniform and blemish-free, holding well without tip-burn. ①

2924 ***A**: 1g, $3.00* ***B**: 4g, $8.40* ***C**: 14g, $20.00*
***D**: 28g, $32.00* ***E**: 112g, $105.00*



Webb's Wonderful (72 days) *Crop failure. Not available in 2020.*

Mâche: see Greens, p. 30.

MELONS & WATERMELONS

~30-35 seeds/g, with exceptions noted.
Culture: See sidebar below for instructions. Melons produce the highest sugars when daytime temperatures exceed 80˚ and nighttime temperatures are 60–75˚.

Minimum germination soil temperature 60˚, optimal range 75–95˚.

Diseases: a number after the abbreviation indicates which race of pathogen.

ANTH	Anthracnose	PRSV	Papaya Ring Spot Virus
F	Fusarium	WMV	Watermelon Mosaic Virus
PM	Powdery Mildew	ZYMV	Zucchini Yellows Mosaic Virus

Days to maturity are from date of transplanting.

MUSKMELONS *Cucumis melo*

1 gram packet, about 20 seeds, sows 7 hills.

Muskmelons are usually heavily netted and deeply ribbed with larger seed cavities than cantaloupes. They are easier and require less heat to grow well than cantaloupes.

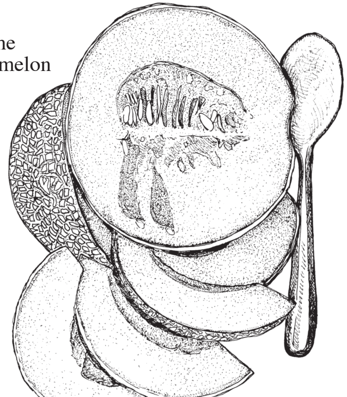
Halona (74 days) F-1 hybrid. Often the earliest muskmelon to vine-ripen for us—Aug. 11 in the very warm 2012 season, Aug. 23 in the less warm one of 2014. Dependable, early and easy to grow even for the melon-challenged, delivering unusual sweetness and muskiness, full flavor with little compromise for the earliness. The 6" oval fruits averaged 2.8 lb for Alice and 3.0 for CR, boasting small seed cavities around thick sweet **orange flesh**. Achieved a 3.4 taste rating out of a possible 4 in Alice Coyle's 2012 trial. Alice's tested at 9.4 Brix, but it has recorded as high as 14–15 in other trials. Enjoys a broad range of geographic adaptation. Tolerant to some F strains, resistant to PM. ②

970 ***A**: 1g, $4.00* ***B**: 3g, $9.00* ***C**: 15g, $30.00*

Magnificenza (78 days) *Dropped by the supplier; no longer available.*

Athena (80 days) F-1 hybrid. This muskmelon ripens early with nice **orange interior color**, good sweetness and not a hint of muskiness. Oval-round well-netted lightly ribbed fruits average $2^{1}/_{2}$–4 lb. An excellent shipper, recommended for commercial growers. 11.0 Brix in OSU trials. Second-best yielder among 10 melons in a UMaine trial. No sales to South Carolina. Tolerant to F0-2 and PM1-2. ~25 seeds/g. ⑥

975 ***A**: 1g, $4.80* ***B**: 3g, $12.00*
***C**: 15g, $45.00*



Sugar Cube (80 days) F-1 hybrid. While the breeder's promo uses all caps to shout muskmelon Sugar Cube's supreme disease resistance, our exclamations exalted the good yield, endearing small size, and flavor that's "just WOW!" as one tongue-tied but satisfied staff member put it. At 4" diameter, this $1^{1}/_{2}$ lb near-globe with light but entire corky netting fits easily in the hand and is ideal for going halfsies. The thick deep **orange** succulent flesh zings like musky candy. "So sweet and heavenly!" said a taster; "Ditto," uttered the next stunned eater. Finally, the loss of Seminis/Monsanto's French Orange can be forgotten. High resistance to PM1-2, F0-2, ZYMV, PRSV, WMV. ②

977 ***A**: 15 seeds, $2.50*
***B**: 60 seeds, $9.00*
***C**: 180 seeds, $17.00*

Home Run (82 days) F-1 hybrid. For some, the most memorable home run in MLB history is Hammerin' Hank Aaron whacking #715 on April 8, 1974, to pass Babe Ruth's all-time record. We've been looking to do a similar dethroning of Athena melon from its assumed perch. Up north in Maine's "perfect" melon weather, Athena's flavor and sugars sometimes strike out, so we've been searching for a short season eastern shipper that hits for power consistently. The breeder says it performs well even in rainy conditions, and sure enough, Home Run was unphased by Maine's cold wet 2019. Just as early out of the field and to the plate as Athena, Home Run blasted us with high sugars and thick dense musky **orange flesh**. A bevy of 4–6 lb coarsely netted oval "dingers" were easy to pick at full slip. Resistant to PM, F 0,1,2. ② **NEW!**

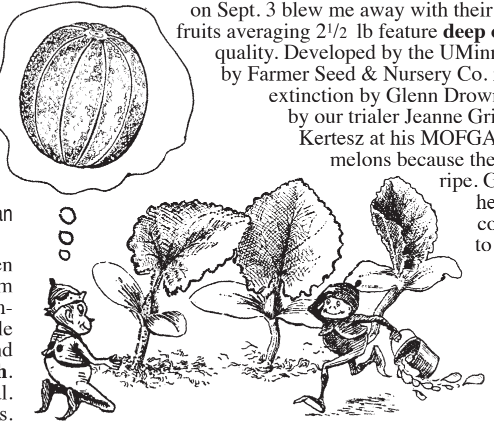
978 ***A**: 1g, $5.60* ***B**: 3g, $12.00* ***C**: 15g, $48.00*

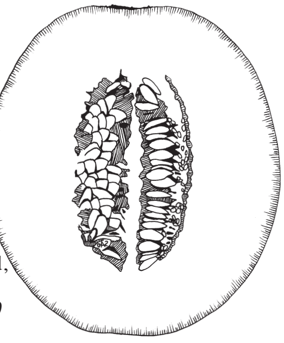
Hannah's Choice (85 days) F-1 hybrid. Hannah is my hands-down choice in Zone 5, for ease, appearance and flavor in hybrid muskmelons. Farther north, in Zone 4, its eating quality has been more variable. Nikos, our purchaser, likens its flavor to the tropical fruit cherimoya "custard apple"—smooth, perfumy, juicy with syrupy sweetness. Other tasters found it caramelly and detected hints of vanilla and coconut. The $6^{1}/_{2}$ x $5^{1}/_{2}$" large netted oval fruits average 3–5 lb with a high Brix rating of 13. As stunning on the inside as it is imposing on the outside, its rich green rind contrasts with the **deep orange flesh**. Kudos to the Cornell breeding program for developing this gourmet melon. At trials in both Freeville and Jamesport, NY, it had 96% marketable fruits by weight, besting Delicious 51 and Athena in color, depth, Brix and overall quality. Resistant to PM, tolerant to F2, ZYMV, PRSV, WMV. ②

979 ***A**: 1g, $4.00* ***B**: 3g, $10.00* ***C**: 15g, $36.00*

Golden Gopher BD (85 days) Open-pollinated. This is one gopher I won't be without. Each year it reminds me just how good a melon can be. Though, as usual, they didn't look too imposing from the outside, the two I harvested on Sept. 3 blew me away with their flavor. The 6" heavily ribbed fruits averaging $2^{1}/_{2}$ lb feature **deep orange flesh** of superb eating quality. Developed by the UMinn in the 1930s and introduced by Farmer Seed & Nursery Co. in 1939, saved from probable extinction by Glenn Drowns, discovered and multiplied by our trialer Jeanne Griffin, and popularized by Jack Kertesz at his MOFGA gardens. Called "Pop Open" melons because they sometimes split open when ripe. Gopher's honeydew parentage helps account for its high sugar content as well as its resistance to F. Very susceptible to PM. ②

980 ***A**: 1g, $2.30*
***B**: 3g, $4.50*
***C**: 15g, $9.00*





Hearts of Gold - Organic (85 days) Open-pollinated. Once the most popular melon in the Midwest, this 2–3 lb **orange-fleshed** muskmelon with a thin rind and thick flesh still deserves its good reputation. The rich flavor speaks of summer itself—juicy, fragrant, sweetly delish. Vigorous vines easily kick out two ribbed and netted fruits per plant. Introduced at the end of the 1800s as one of the first "modern" melons, it's now been around long enough to be considered an heirloom. Keep on searching for a heart of gold, but first take a sweet melon break. ② **NEW!**

982 ***A**: 1g, $2.10* ***B**: 3g, $4.00*
***C**: 15g, $8.50*

Pride of Wisconsin - Organic (88 days) The best full-sized open-pollinated muskmelon. CR's first fruit, harvested vine ripe on Sept. 3, a flawless 5.56 lb specimen, was the highlight of his 2016 growing season, confirming Pride's place at the pinnacle of heirloom melons. It was melon nirvana: its superb smooth texture and juicy refreshing sweetness satisfying through and through with just the right delicate balance and no musky aftertaste. High-quality large oval **salmon-fleshed** 5–7 lb fruits have coarse netting and compact seed cavities. Edible all the way to the rind. Tends to crack at the blossom end during wet seasons so not recommended for long-distance shipping. Known as Queen of Colorado when it was introduced in 1923 by the St. Louis Seed Co. Offered in the '40s and '50s by Burpee and Eastern States Cooperative. All but disappeared from the trade after the onset of hybridization, maintained by a handful of seed savers. ②

984 ***A**: 1g, $2.50* ***B**: 3g, $6.00* ***C**: 15g, $12.00*
***D**: 30g, $20.00*

Most Years You Can Vine-Ripen Melons In Maine

Melons are a tender crop with high nitrogen requirements. They love heat, cannot stand frost, and may be damaged by night temperatures below 40˚. Though they require some extra fussing, the results are sure worthwhile.

❋ Note days to maturity and select varieties that will ripen in your climate. Dove, Alvaro and Halona are surest bets.

❋ Start indoors in early May (later if the spring is slow to warm) in pots, 2-3 seeds to a pot. Melons resent transplanting but will take if their roots are not disturbed.

❋ Prepare hills or rows in advance with liberal amounts of well-rotted manure or compost. Don't place melons next to crawling plants like cucumbers, gourds or winter squash. Space rows 6-8' apart, plant melons about 2' apart, watermelons 3-4' apart.

❋ A cold start can permanently stunt growth, so wait for a warm spell after all danger of frost to transplant, usually between May 20 and June 20. Water heavily and, if soil is dry, lay a temporary mulch until a soaking rain comes.

❋ Melons are more sensitive than squashes so use low tunnels with floating covers that do not abrade plants. If you have sandy soil, check daily and irrigate when needed.

❋ Use blue, black or clear plastic mulch between plants.

❋ Use a foliar feeding program to speed ripening.

❋ Remove row covers before buds open. Replace them when you don't desire any more fruit to set.

❋ To reduce rot loss, rotate ripening melons occasionally. To reduce mouse damage, place ripening melons on bricks.

❋ Inspect your patch daily at ripening time. Check fruits for aroma and color and pull gently on those that appear to be ripe. Most muskmelons are ripe when the pressure causes them to slip from the vine.

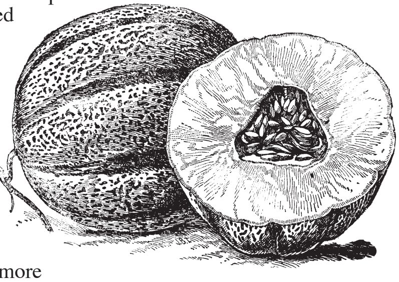
Key to symbols (❊ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

more MUSKMELONS

Delicious 51 (88 days) Open-pollinated. Among the best widely available OP muskmelons for cold climates. Distinctively ribbed with sparse netting, its sweet 3 lb fruits turn yellow and are sometimes soft when ripe. **Dark orange interiors** with sweet juicy aromatic flesh. Received 11 Brix reading at OSU trials. Developed by Dr. Henry Munger of Cornell U in 1953. *Likely to be our last year offering*. Resists F, PM. ②

***985** A: 1g, $2.10 B: 3g, $4.00*

Montreal Market - Organic (89 days) Open-pollinated. Also known as Montreal Nutmeg, the best argument going for maintaining gene banks. Believed extinct, it was saved by Montreal cultural preservationists who finally located a few seeds in the USDA Ames, IA, repository in 1996. This very rare legendary **green-fleshed** muskmelon was once widely grown in Canada, New England and the Upper Midwest. Hedrick in *The Cucurbits of New York* asserted that "handled skillfully and intelligently produces the largest fruits of its type in American cultivation," sometimes reaching 20 lb. With an exotic sweet spicy flavor as unique as its size, these became the summer dessert of choice in New York's Waldorf Astoria, Boston's Ritz and other stylish hotels, fetching growers as much as $30 per dozen in 1921, and costing more per slice than most steaks on the menu. Though commercialized by Burpee in 1881, its roots trace back to the early French settlers. Widely grown on the western edge of Montreal in Zone 5b, it gradually disappeared after World War II as expansion and an expressway swallowed up rich agricultural land and tastes shifted away from green-fleshed melons. Its thin rinds, large size and inability to store long also dampened its success. Intricately netted and prominently ribbed, the aromatic fruits have a silky texture and a spiciness reminiscent of nutmeg or ginger. Regular moisture and use of horse manure are said to be the secrets to good growth. In zones and microclimates other than Montreal's more likely to grow 4–5 lb. ①



***986** A: 1g, $2.80 B: 3g, $6.00 C: 15g, $13.00*
D: 30g, $22.00

GALIA-TYPE

The name *Galia* is the feminine form of the Israeli name *Gal* (meaning 'wave'). Developed in Israel around 1970 by breeder Zvi Karchi, Galias feature smooth **lime-green flesh** and a sweet taste with tropical overtones. Typically the fruits have corky netting but no ribbing.

Culture: Pull from the vine when the skin blushes yellow, at full slip.

Diplomat (76 days) *Only treated seed was available*. Try **960** Courier.

Arava - Organic (80 days) F-1 hybrid. Some years back, during a spring trip to Israel, CR visited Genesis Seeds, the producers of this stellar **green-fleshed** melon that is named for the long valley that traverses much of the desolate Negev Desert in southern Israel. Though it is hard to believe that anything will grow in such a place, these Arava melons are the signature Israeli variety found in all the markets. A welcome relief there at the edge of the desert, where stepping outside mid-morning in April feels like entering a blast furnace. Unsurprisingly, he developed quite a taste for these sweet refreshing fragrant cantaloupes. Smooth, no ridges, lightly netted, blemish-free and uniform. In 2012, Alice Coyle harvested 12 fruits from four plants, averaging 1.56 lb each that tested 10.9 Brix. Will grow larger in a warmer climate. Resistant to PM. ③

***958** A: 1g, $4.00 B: 3g, $8.00 C: 15g, $32.00*

Courier (85 days) F-1 hybrid. In our variable (good, bad and downright ugly!) northern summers, we've been disappointed by the elusive flavor and sugar content of many Galia varieties. So we were overjoyed when Courier delivered tip-top sweetness through multiple trial years, rating among the best of any melon type we offer. There was a "sugar rush" of slice-grabbing during our 2019 melon tasting at the warehouse. The slightly oval fruit has very **dense green flesh** and a small seed cavity, making a heavy average of 4 lb melons. With fine net on its telltale ripe golden-tan skin, Courier can be picked easily at full slip or can be cut from the vine at partial slip for longer keeping. Resistant to PM, F 0,1,2. ② **NEW!**

***960** A:1g,$4.00*
B: 3g, $8.00
C:15g,$28.00

ANANAS TYPE

Originating in the Mideast, Ananas is a type of white fine-fleshed netted muskmelon that develops considerable sweetness along with a hint of spiciness in summer heat.

Dove (70 days) F-1 hybrid. I was shocked and awed to harvest a vine-ripe melon on Aug. 6, my earliest ever. In all, I picked five averaging 2.9 lb. That same season, Alice ripened fourteen fruits in the first nine days of August and concluded, "I love Dove. So do my restaurant buyers." Dove may be the earliest, easiest and sweetest melon you will ever grow. The **ivory-colored flesh** with tropical fruity overtones has tested as high as 15.5 on the Brix sweetness scale. The greenish-orange skin shows scant netting and blushes as the fruits ripen. After harvesting let them sit 3–4 days to bring out their full flavor. So early, a candidate for succession plantings. Short shelf-life, not for long-distance shipping. ②

***916** A: 1g, $6.00*
B: 3g, $14.00
C: 15g, $55.00

CANARY TYPE

Named for their distinctive yellow skin, canary melons have white interior flesh.

Mayor (85 days) F-1 hybrid. A Spanish-bred canary whose name translates to 'bigger.' The blocky oblong deep golden-yellow 4–6 lb fruits with **white flesh** feel heavy for their 8–10" x 5–6" size. Mayor is not a crunchy "meh" grocery canary, but a ripe-honeydew-and-creamy-crenshaw-like affair. Unlike other canary types, few furrows mar Mayor's smooth skin. Our staff says of Mayor: "Like a sorbet," "So smooth, amazing texture," "Essence of a flower, honey sweet" and "Buttery, tastes like candy." Good market-worthy yields in Maine of all places, and best of all, over several seasons, Heron reports picking Mayors in early September and storing them at room temperature until November. While the flavor does fade some, "cutting into a good homegrown melon on Halloween is pretty awesome." Mayor does not slip from the vine. Good size, full color, and slight give to finger pressure on the blossom end mean it's ready to pick. Luckily, Mayor resists split ends better than any canary we've grown. Transplant only. Plastic mulch and row cover are de rigueur for success in the open field in the north. ~25 seeds/g. ④

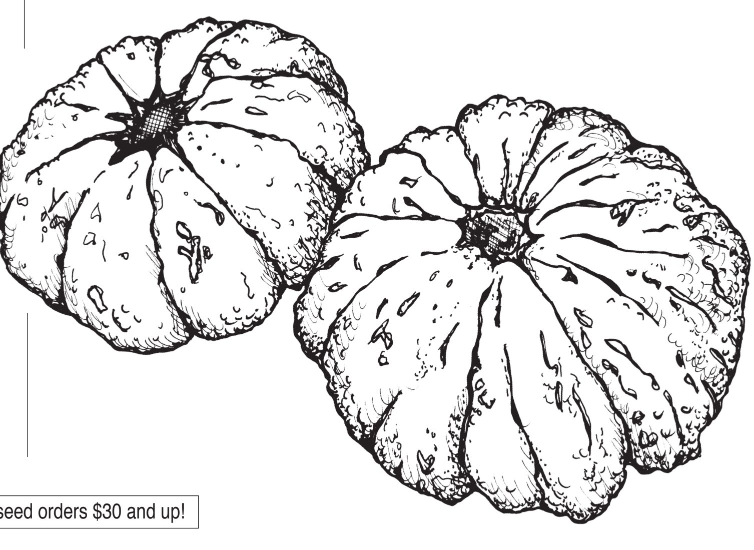
***927** A: 15 seeds, $6.00*
B: 60 seeds, $18.00
C: 180 seeds, $36.00

CANTALOUPE

Cantaloupes, named for the papal gardens of Cantalupo, Italy, where some historians say the first cantaloupe was grown, are smooth-skinned or lightly netted with few ridges. Some are warted. Blushing skin color and a whiff of perfume are usually telltale signs of ripening.

Prescott Fond Blanc - Organic (88 days) Open-pollinated. Fond Blanc translates to 'white bottom.' Don't be fooled by the outer appearance of this wrinkled bumpy warted thick-skinned puffy-looking grey-green rock melon! (One author describes the skin as "tough as rhinoceros hide.") Looks like spumoni on the inside, the outer layers of green and yellow giving way to **deep orange flesh** in the center. Then oo-la-la! Sniff its rich bouquet and bite into the juicy melting dense savory flesh. As Prescott's 3–5 lb true cantaloupes ripen they develop a yellow blush and a floral redolence, and finally slip off the vine with light pressure when fully ripe. Bring them in and let them sit for a week, then enjoy! Fruits ripen variably, vines keep producing, averaging about four melons per hill. ②

***943** A: 1g, $2.40*



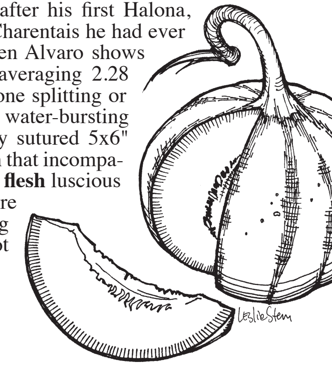
CHARENTAIS

This French melon is a true **cantaloupe**, almost smooth with no netting. Green skins blush yellow-tan when ripe; fruits emit a memorable redolence.

Harvest at half-slip (they pull off with a moderate tug) and bring inside for a day or two for best flavor. Don't wait till full slip—they'll be over-ripe.

Alvaro (77 days) F-1 hybrid. A class of **cantaloupe** notoriously slow to ripen and difficult to harvest ripe without splitting, the ideal Charentais eluded our trialers for years until Heron found Alvaro. Heron calls it the Halona of Charentais melons because his, so early, matured around the same time as Halona in 2013. CR's, first ripening on Sept. 4, 2014, the day after his French Orange and twelve days after his first Halona, were still way earlier than any other Charentais he had ever tried. Almost as if sculpted, grey-green Alvaro shows remarkable uniformity. All 5 fruits, averaging 2.28 lb, ripened within a 3-day window, none splitting or showing any other damage. Even in water-bursting 2013, Heron had nary a split. Deeply sutured 5x6" fruits without netting fill the room with that incomparable Charentais aroma. Thick **orange flesh** luscious and succulent with silky but firm texture and rich full-bodied flavor—everything we've wanted in a Charentais but not found since French Orange. ④

948 ***A**: 15 seeds, $5.00*
***B**: 60 seeds, $16.00*
***C**: 180 seeds, $36.00*



HONEYDEW

~28 seeds/g.

Discerning ripeness in honeydews is an art. At least two or three of the following signs should align before you cut fruit from the vine: 1) Fruits are free of fuzz or minute hairs that denote immaturity. 2) Stems dry at tendrils. 3) Fruits assume proper coloration (different for different varieties). 4) Light firm pressure applied to fruit bottom results in a slight give or rubbery rebound (pick soon). Give extends into the curve outside of the blossom scar (pick now). Do not wait for full slip—fruits will crack and get over-ripe. Cure 1–4 days off the vine for best flavor, until it develops a very subtle sweet smell of perfumed honey indicative of melting juicy full-flavored flesh.

Uncle Sam (78 days) *Not available*. Uncle Paul is our new favorite uncle.

Uncle Paul (80 days) F-1 hybrid. As we bid farewell to excellent but discontinued Uncle Sam, we welcome Uncle Paul. Sam and Paul are siblings from the same high-quality **orange-fleshed honeydew** breeding program. Dense orange flesh is richly honey-flavored. Cream-colored skin blushes peach, and we've seen none of Sam's infamous cracking. Paul averages 3–3½ lbs and tends toward oval-round shape with consistent sizing. Early, reliable and productive in the North. Sometimes Uncle Sam lets us down—turn to Uncle Paul. ④ **NEW!**

964 ***A**: 1g, $6.60*
***B**: 3g, $13.00*
***C**: 15g, $55.00*

White Honey (80 days) The Chinese tariff situation is so unstable that we are not assured of a supply. *Please check our website for availability.*

SENSATIONAL MELON

Sensation (85 days) F-1 hybrid. Bested Seminis-bred French Orange at a memorable late-August staff melon taste-off, motivating both Susan Kiralis and Bria Sanborn to grow melons for the first time. CR was not present, but he later joined the Sensation fan club when it became the first melon to vine-ripen for him on Aug. 27 and 31. Very sweet, but not cloying, with perhaps the highest Brix of any melon in the catalog. Complex, too, with haunting hints of hazelnut, amaretto and cinnamon. Very unlike French Orange, and not fitting into any of the usual classes of melons, Hollar's Sensation generates sparsely netted 2–4 lb fruits with very small seed cavities surrounded by glistening **white flesh**. As they ripen, their buff skin becomes burnished with an orangey-yellow haze and they readily slip from the vine. Brought indoors, they fill the room with their enticing fragrance. Resistant to F0-2 and PM. ②

996 ***A**: 1g, $4.00* ***B**: 3g, $10.00* ***C**: 15g, $37.00*

WATERMELONS *Citrullus lanatus*

1 gram packet about 20 seeds, sows 7 hills; ½ oz packet, packet about 40 seeds, sows 14 hills. 1 oz is ~670 seeds.

Harvesting watermelon at proper ripeness is an art. Thumping should produce a low, hollow sound. Spread thumb and forefinger and press hard on fruit. If you feel any give, watermelon is ripe. Don't heed the traditional advice to wait for the closest tendril to brown—that may be too late.

Watermelon...
Isabelle Jane Rogers
dkl
2019

RED & PINK FLESH

Blacktail Mountain - Organic (71 days) Open-pollinated. At age 17 cucurbit aficionado and future eminent seedsman Glenn Drowns took on his 4-year project to breed a watermelon that would withstand the rigors of his mountainous northern Idaho climate and ripen before first frost despite summer nighttime temperatures that averaged 43°. No wonder Blacktail Mountain is the earliest variety extant, among the hardiest, best adapted to a variety of conditions, and even stores after harvest as long as any. Adam Tomash and June Zellers deserve credit for popularizing this melon by sharing tastes at the Exhibition Hall at Common Ground Fair. They have harvested "delicious" 17 and 19 lb melons. This is at the upper end of Blacktail's potential; most will run from 8–12 lb. Fruits are dark green, almost black, with faint stripes, **flesh orange-red** like a Sugar Baby only with a cleaner more pleasing texture, very sweet, juicy and crunchy. Drowns didn't rest on his laurels—he now maintains Sand Hill Preservation Center in Iowa, his catalog a treasure trove of rare seed and poultry varieties. **OSSI Breeder Royalties.** ②

open source seed initiative

1003 ***A**: 1/16oz, $3.20* ***B**: 1/4oz, $8.50* ***C**: 1/2oz, $15.00*
***D**: 2oz, $30.00*

Diana (76 days) F-1 hybrid. Our 2013 summer hunt for yellow-skinned luster and excellent quality showed Diana supreme. She easily bested past-favorite Golden Crown, AAS winner Faerie and open-pollinated Golden Midget, her 10.3 Brix reading dwarfing Midget's anemic 7.4. Her 2.2 lb oval melons look as if their light skins were painted with bright yellow stripes. Her crunchy texture, sweetness and complex flavor, unmarred by the small sparse seeds, won over our warehouse staff. Showed good productivity of 6 fruits from two hills in a poor melon year. "A hit, lovely golden rinds and very sweet **bright red flesh**," sums Ohio's Janine Welsby. ③

1016 ***A**: 15 seeds, $5.00* ***B**: 60 seeds, $15.00*
***C**: 180 seeds, $33.00*

Sugar Baby - Organic (80 days) Open-pollinated. The first of its genre and still the standard northern icebox watermelon. Among the earliest in its class, Sugar Baby grows 8–10 lb fruits, dark green outside and **deep red** inside. Discovered in a field of picnic watermelons by M. Hardin of Geary, OK, in 1955 and introduced by the Woodside Seed Co. Still prized by those who prefer their watermelons OP and of modest size, although its flesh quality is grainier than the pricey supermarket mini-melons. ③

1028 ***A**: 1/16oz, $2.40* ***B**: 1/4oz, $5.00* ***C**: 1oz, $7.00*
***D**: 1#, $70.00*

Sweet Dakota Rose - Organic (82 days) Open-pollinated. When David Nonnenmacher of Hawley, PA, claimed his absolute beauties started at 15 lb and topped off at 26 and 28, he would perhaps forgive our skepticism. You couldn't grow those in Maine, we thought, until Erica Rudloff of Exeter proved us wrong by exhibiting her magnificent 19 lb specimen at the 2015 Common Ground Fair. Nonnenmacher clarified that he had mere 15-pounders in 2017's cool summer but praised their production and sweetness despite the weather. Bred by David Podoll of North Dakota to be intermediate between its parents, small early maturing Early Canada and enormous late-maturing Black Diamond, its skin light green with dark green stripes and its **flesh red**. A star in CR's trials, maturing early and producing 8–12 lb fruits, 2–3 per plant. It has few seeds and stores longer than most others. Nonnenmacher reported its outstanding juiciness and flavor "drew raves from chefs and many fellow PASA members. I think I have them convinced that modern seedless watermelons not only leave out the seeds but also the flavor." We have no difficulty believing that. **OSSI.** Ω ①

open source seed initiative

1035 ***A**:1/16oz, $2.80*
***B**: 1/4oz, $8.00*
***C**: 1oz, $20.00*

> Sorry to be so late with this big order but I have had 2 eye surgeries and was unable to see. Now it's catch up time!
> – Dawn D.

more WATERMELONS

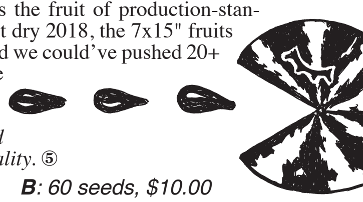
Quetzali (85 days) Open-pollinated. Sweet (tested 9.7% sugars at WSU trials) with some substance. Ripens 9–12 lb fruits with dark green skin splotched with lime-green sponge prints. Even more attractive on the inside where the dense **pink flesh** is almost seedless! Caution: Requires a sharp knife, strong wrist and sure stroke to cut open its skin. Resists ANTH1. We cannot ship to South Carolina. PVP expired! ⑥

***1042** **A**: 1/16oz, $2.70 **B**: 1/4oz, $7.00 **C**: 1oz, $16.00*

Sunsweet - ECO (85 days) Open-pollinated. Though it loves warm locales, Sunsweet is adapted almost anywhere. Our melon trialers in central Maine have harvested two 20 lb fruits per plant. They report it outproduces hybrid Sweet Favorite and is earlier and bigger than hybrid Sangria. Skin dark green with broken light green stripes. We recommend this large oval watermelon for **glorious red** sweet juicy delectable treats. When the PVP ran out and our supplier dropped it, we were caught unaware with no seed set aside. We put the word out to our customers and Long Days Farm came to the rescue with enough seed to get us going again! The careful craft of our grower extraordinaire at Red Fern completed the cycle of growing more seed. Resistant to ANTH and F. ① **BACK!**

***1046** **A**: 1/16oz, $2.20 **B**: 1/4oz, $6.50*

Fantasy (85 days) F-1 hybrid. Northern growers have probably noticed our italicized cautions saying *maybe not really for you* on whopper striped oblong watermelon varieties. In our own gardens, we never skimp on the tricks of planting good seedlings into black plastic under row cover, yet getting yields of 1 or 2 fully ripe biggies per plant amounts to a good year. Big news: if our 2018 Zone 4 watermelon trials have any merit, now is your chance to live the watermelon dream. With extra-sweet **deep red flesh** and raging watermelon flavor, Fantasy made four times the fruit of production-standard Sangria, and was earlier. In hot dry 2018, the 7x15" fruits weighed 15 lbs; a little more rain and we could've pushed 20+ lbs easy. Its vigor and yields prove it was bred for organic growing conditions. But here's the italic warning: *Northern growers could get used to this new watermelon reality.* ⑤



***1045** **A**:15 seeds, $3.60 **B**: 60 seeds, $10.00*
***C**: 180 seeds, $24.00*

Verona - ECO (86 days) Open-pollinated. We found this rare large red oblong watermelon through Seeds of Change. Verona was introduced in 1965 in Mississippi. One of its parents is the famous Charleston Gray. Considered the earliest and best-tasting of the Black Diamond types, Verona pumps out 15–20 lb fruits with thin but tough smooth dark green skins and attractive firm **red flesh**. Sweet and tasty, the best-flavored OP watermelon I've ever eaten, Verona had high yields in the OSU trials and got raves at the staff taste test. Well adapted to cool climates, has produced impressively even as far north as Starks, ME. Tolerant to ANTH, F. ①

***1047** **A**: 1/16oz, $2.60 **B**: 1/4oz, $7.00 **C**: 1oz, $16.00*

La Bestia (87 days) F-1 hybrid. This variety bears the nickname of the U.S.-bound cargo trains that traverse Mexico, often with Central American migrants clinging atop, attempting the perilous journey to Estados Unidos. Growers and gardeners in the North often fear growing unfamiliar watermelons. This *Citrullus* nativism is rooted in the limitations of our short growing seasons, but La Bestia's early large yields and behemoth size will shatter preconceived notions. An extra big and bulky elongated Sangria type with intensely sweet **deep red flesh**, this beast rocked the scales at 15–20 lbs even in Maine's cool slow-starting summer of 2019. Three monsters per plant were cut from thick rambunctious vines with foliage more akin to winter squash's. Long keeping and shipping qualities result from a solid rind thickly swathed in dark green with thin light streaks. ④ **NEW!**

***1050** **A**: 15 seeds, $3.60 **B**: 60 seeds, $10.00*
***C**: 180 seeds, $21.00*

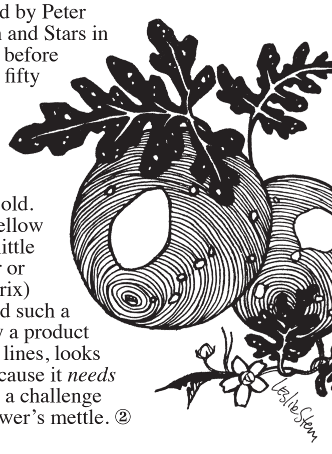
Sangria (88 days) F-1 hybrid. The sweetest (as much as 12–14% sugars in some tests) juiciest watermelon in our trials. These elongated ovals average 10–12 lb with dark green skin broken by light green stripes. Bright refined **red flesh** will satisfy the most avid sugar seekers. Sangria, the first hybrid Allsweet type ever developed, has been a big hit on the market. Cannot ship to South Carolina. Tolerant to some races of ANTH and F. *May not ripen in areas with insufficient heat*. ⑥

***1056** **A**: 15 seeds, $3.20 **B**: 60 seeds, $10.00*
***C**: 180 seeds, $26.00*

Crimson Sweet - Organic (90 days) Open-pollinated. The deeply satisfying taste of its very sweet crisp **dark red flesh** brought CR's 2014 CGCF Exhibition Hall talk to a fitting conclusion. Thank you, Rachel Katz. This almost-round 10x12" light green melon with bold dark green stripes has defined good watermelon eating since 1964 when it was developed by Dr. C.V. Hall of Kansas State. Tolerance to ANTH1,3 and F1,2 and a thick skin suitable for shipping make it a commercial favorite in the Middle Atlantic states and the Southeast. 9.9 Brix at WSU trials. Vigorous vines. Pam Dawling who grows seed for it says 22 melons yield 1 lb of seed. 1978 AAS winner. *Recommended only for growers in climates warm enough to grow a 25 lb watermelon*. ③

***1063** **A**: 1/16oz, $2.30 **B**: 1/4oz, $5.00 **C**: 1oz, $7.00*
***D**: 1#, $65.00*

Moon and Stars - Organic (100 days) Open-pollinated. Once feared extinct, this now-famous watermelon became a cause célèbre for the Seed Savers Exchange. Released by Peter Henderson & Co. as Sun, Moon and Stars in 1926, it was popular in the '30s before fading into obscurity for almost fifty years. Seed Savers Exchange co-founder Kent Whealy found it again in 1981 after a four-year search and his son Aaron supplied us with our original seed when he was just 12 years old. Dark green skin has beautiful yellow spots which range in size from little peas (the stars) to a silver dollar or larger (the moon). Sweet (9.7 Brix) somewhat grainy **pink flesh**, and such a looker! Spotted foliage, actually a product of a virus found in the breeding lines, looks unhealthy to the uninitiated. Because it *needs a lot of heat to set fruit*, it poses a challenge worthy of the Maine melon-grower's mettle. ②



***1072** **A**: 1/16oz, $2.40*
***B**: 1/4oz, $6.00*
***C**: 1oz, $16.00*

YELLOW & ORANGE FLESH

Petite Yellow (75 days) F-1 hybrid. Light green watermelon with narrow dark green stripes and a little more than half the size of Peace, these 4–5 lb **yellow-fleshed** cuties make perfect one-meal melons, sweet, juicy, with flavor and texture to please and very few seeds to interfere. Tough skin that resists cracking and permits long-distance shipping. ③

***1007** **A**: 1/16oz, $6.00*

Peace (75 days) F-1 hybrid. At the end of CR's CGCF Exhibition Hall table talk one Sunday we tasted Peace alongside the old standard Seminis-Monsanto's Yellow Doll. Although the informal vote afterwards was split, Peace compared favorably in flavor, texture and sweetness enhanced with a floral aftertone that added some complexity. Its **yellow flesh** has that kind of drizzle-down-your chin juiciness that thoroughly satisfies on a hot late-summer day. Good production of 8 lb avg fruits adorned with light green skin punctuated with narrow dark green stripes. ③

***1009** **A**: 1/16oz, $6.00 **B**: 1/4oz, $18.00 **C**: 1oz, $60.00*

Gold Flower (75 days) The Chinese tariff situation it too unstable to be sure of a supply. *Please check our website for availability.*

Early Moonbeam - Organic (78 days) Open-pollinated stabilized selection from Yellow Doll, one of breeder Alan Kapuler's notable successes in de-hybridizing. He retained most of Doll's strengths including earliness, icebox size (5–8 lb), sweet **yellow flesh** and colorful skin of dark green stripes on a greenish-white background, while sacrificing only a scintilla of uniformity and flavor. Brix reading of 9.9 at WSU trials. **Breeder Royalties.** ①

***1021** **A**: 1/16oz, $2.80 **B**: 1/4oz, $7.00 **C**: 1oz, $21.00*

Orange Orchid (78 days) F-1 hybrid. For a smaller more-marketable alternative to Orangeglo, grow Orchid. Orchid provides reliable early production of refined 6–8 lb oblong fruits with **bright orange flesh**, crisp texture and super sweet floral flavor and not a hint of the hollow heart that can plague orange-fleshed watermelons. Medium light green rind with dark green striping. Ripened Aug. 29, 2013, for Heron from a late June 12 transplanting. CR's, started later in 2014, ripened mid-September, checking in at 8.25 lb, the best he had grown in eight years in Colrain's watermelon-averse sandy loam. ③

***1024** **A**: 1/16oz, $5.00 **B**: 1/4oz, $15.00 **C**: 1oz, $42.00*

Orangeglo (90 days) *Alas, no Glo in 2020.*

OKRA

Abelmoschus esculentus

~10–15 seeds/g. 2 gram packet contains about ~20–30 seeds.

Culture: Direct seed or start indoors in peat pots and transplant in 4–5 weeks, after all danger of frost has passed. Transplant 1' apart; do not disturb roots. Once it flowers, the fleshy pods will be ready for harvest in two days. They are best when picked young and tender, no longer than 4". Longer pods are really fibrous.

Maine state legislator Craig Hickman of Annabessacook Farm in Winthrop, who grows 400 plants per year, says okra requires TLC, balanced nutritious soil with good pH, and not much competition from weeds. According to one of his veteran fieldhands, "Okra is a diva…that needs hot weather for about 60 days."

Minimum germination temperature 60°, optimal range 70–90°.

Days to maturity are from date of transplanting, not seeding.

Cajun Jewel - Organic (65 days) Open-pollinated. A bayou favorite since the 1950s, Cajun Jewel adapts well to our cooler climate and produces almost as much as hybrid Cajun Delight. Dwarf spineless 3–4' plants yield relatively early 1x7" pods with good flavor. Southern Exposure Seed Exchange introduced this Jewel to commerce in 1989. ①

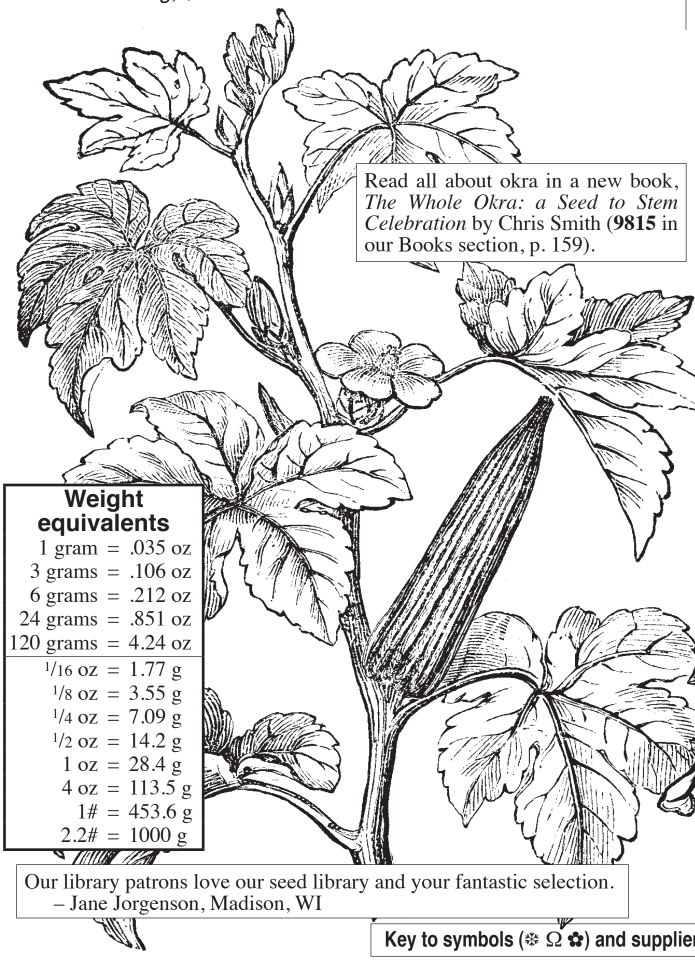
3695 ***A**: 2g, $2.40* ***B**: 4g, $3.80* ***C**: 28g, $12.00*
***D**: 112g, $30.00* ***E**: 448g, $100.00*

Red Burgundy - Organic (75 days) Open-pollinated. This dual-purpose cultivar is a stunning ornamental as well as a culinary delight. Although most productive in the south, Red Burgundy is hardy enough to generate at least a few pods here. Slender pods will grow 6–7" but are best harvested at 4" for optimal texture and flavor. Our trialer Relentless says they "taste as good as any green okra." Later and not as productive here as Cajun Jewel, but an absolute stunner with its green leaves and burgundy ribs, stems and pods. Bred by Leon Robbins at Clemson University. ③

3697 ***A**: 2g, $2.00* ***B**: 4g, $2.80* ***C**: 28g, $4.00*
***D**: 112g, $12.00*

Beck's Big Buck - Organic (85 days) Open-pollinated. When Malcolm and Delphine Beck bought their farm in 1968 in Comal County, TX, they found in the abandoned garden giant okra stalks with the fattest pods they'd ever seen. They saved and replanted the seed, and it grew big fluted remarkably tender delicious green pods in abundance on sturdy plants. They called it the snapping okra because it snaps so easily off the plants when it is ready to harvest. Though not adapted to our climate, Beck's will produce even in central Maine in an average growing season. Of course, it will do much better farther south. Regardless, the flowers make it a gorgeous ornamental. ②

3699 ***A**: 2g, $2.20* ***B**: 4g, $3.60* ***C**: 28g, $9.00*
***D**: 112g, $20.00*



Read all about okra in a new book, *The Whole Okra: a Seed to Stem Celebration* by Chris Smith (**9815** in our Books section, p. 159).

Weight equivalents

1 gram	=	.035 oz
3 grams	=	.106 oz
6 grams	=	.212 oz
24 grams	=	.851 oz
120 grams	=	4.24 oz
1/16 oz	=	1.77 g
1/8 oz	=	3.55 g
1/4 oz	=	7.09 g
1/2 oz	=	14.2 g
1 oz	=	28.4 g
4 oz	=	113.5 g
1#	=	453.6 g
2.2#	=	1000 g

Our library patrons love our seed library and your fantastic selection.
– Jane Jorgenson, Madison, WI

ONIONS, SHALLOTS, LEEKS & SCALLIONS

Allium spp.

Culture: Start allium seeds indoors in February or March. We discourage using bottom heat because alliums germinate poorly in soil temps above 70°. Transplant in spring soon after the ground can be worked.

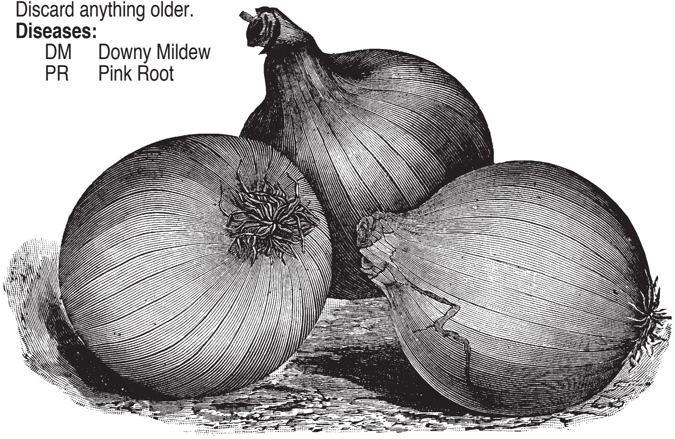
Minimum germination temperature 50°; optimal range 60–70°.

Alliums are heavy feeders and want generous amounts of organic matter, fertilizer and water. Late transplanting and poor fertility can result in small onions or failure to form bulbs. Alliums are notoriously intolerant of weeds. Slugs love to munch them, and in areas above 40° latitude, root maggots may be a problem.

About allium seed: Allium seed is short-lived. We do not hold over hybrid onion seed because of precipitous decreases in germination. Test 1-year-old seed before using. Discard anything older.

Diseases:

DM	Downy Mildew
PR	Pink Root



ONIONS *A. cepa*

~200–250 seeds/g, ~6000–7500 seeds/oz.

Culture: Set seedlings out 1–2" deep and 6–8" apart in shallow trenches, 1–2' between rows. Onions survive light frosts. After half the onion tops fall, push over the remainder and harvest within a week. Field-cure in the sun about 10 days until dry, covering with a tarp in wet weather. In the event of extreme heat or prolonged damp conditions, we recommend sheltered curing in a well-ventilated barn or greenhouse. Curing is essential for long storage. Store cured onions in mesh sacks in a cool dry well-ventilated place, periodically removing sprouting or rotting bulbs. In spring, put your remaining onions in the fridge to extend storage until your new crop is ready.

Onions are triggered to form bulbs properly in response to day length. Day length differs depending on latitude, so different onion varieties were developed to have different day-length needs. In the north, the earlier onions are set out, the more chance they have to make top growth while the days are lengthening. The more top growth, the greater the bulb size. After summer solstice they begin bulbing.

All the varieties we list are suitable for northern growers. If you live farther south, note our latitude specifications at the end of each description.

Long-day: Must be north of 36° latitude, though some long-day types perform best north of 40°. These onions need 14–16 hours of sun a day to trigger bulb formation. May not perform well in continually hot soil temps.

Intermediate-day: Also called day-neutral onions, generally need 12–15 hours of daylight to bulb. Some can do well in parts of the upper southern U.S. all the way up through Maine. Others are best for mid-latitudes only (35–40°). All intermediate-day onions in our catalog have performed well repeatedly in our Maine trials.

(Short-day: Suited for the South, below latitude 36°, bulbing when the day length measures between 10–12 hours. *We don't offer seed for short-day varieties.*)

Days to maturity are from date of transplanting, not seeding.

YELLOW SUMMER ONIONS

Ailsa Craig (110 days) Open-pollinated. These enormous slightly oval pale straw-colored globes are sweet, mildly pungent and store but a short while. Elisabeth gives them a prominent place in the garden where the 1–3 lb beauties boost her morale each time she walks by. Year after year astounding specimens are exhibited at Common Ground Fair. Also known as Exhibition, a cross between Danvers Yellow and Cranston's Excelsior introduced by David Murray in 1887. Adapted to 38-60° latitudes. ④

2484 ***A**: 1/16oz, $3.50* ***B**: 1/8oz, $5.00* ***C**: 1/2oz, $17.00*
***D**: 1oz, $31.00*

Walla Walla Sweet Spanish (125 days) Open-pollinated. "Join the funion and be part of the onion ring" is the slogan of the annual June sweet onion festival celebrated in Walla Walla, WA. Their signature sweet onion is said to have originated in the French island of Corsica and been brought to Washington by a French soldier. It became famous in the Pacific Northwest for its juicy sweet flavor and has been in commerce since around 1900. In WA it can be wintered over. In our harsher zone it must be sown in the spring for fall harvest. These large onions are renowned for their mild flavor as soon as they come out of the ground. They do not store. Adapted to 35-55° latitudes. ①

2498 ***A**: 1/16oz, $2.60* ***B**: 1/8oz, $3.90* ***C**: 1/2oz, $7.50*
***D**: 1oz, $13.00* ***E**: 4oz, $32.00* ***K**: 1#, $109.00*

YELLOW STORAGE ONIONS

New York Early - Organic (98 days) Open-pollinated. Superior strain of Early Yellow Globe selected for storage until early spring. Very firm mild yellow onions may be eaten raw in salads or sandwiches. They average 2 1/2–3" across with a taste like Copra and storage only slightly shorter. “My fave, sweet & tender,” praised one of our tasters. Ours rates as the best strain in an independent evaluation. New York Early was maintained by commercial onion growers in Orange County, NY. Adapted to 38-50° latitudes. ①

2449 ***A**: 1/16oz, $2.40* ***B**: 1/8oz, $3.90* ***C**: 1/2oz, $9.00*
***D**: 1oz, $16.00* ***E**: 4oz, $58.00* ***K**: 1#, $220.00*

Expression (98 days) F-1 hybrid. The testimonials poured in when we threatened to drop this onion. Since you expressed yourselves, we’ve kept this nice big juicy sweetie around. “As large and flavorful as Candy with better disease resistance,” said Anne Nordell of Trout Run, PA. “Wow, we had some that weighed almost 1.5 lb apiece…I haven’t been able to eat any onions raw for years, but I was delighted to find that these did not bother my stomach at all,” chimed in Janine Welsby. Short to medium storage, decent heft (the large light brown globes average about 12 oz) and flavor. Bred by Bejo for high yields in rich clay loamy soils in the Northeast and PA. PR-tolerant. Adapted to 32-45° latitudes. ④

2454 ***A**: 1/16oz, $4.00* ***B**: 1/8oz, $6.00* ***C**: 1/2oz, $20.00*
***D**: 1oz, $36.00* ***E**: 4oz, $136.00*

Patterson (104 days) F-1 hybrid. From our field trials and from feedback from staff farmers, blocky-globed rusty-bronze–skinned Patterson has emerged as Copra’s worthy heir apparent. At 1.3 lb average Patterson is larger and more uniform, equaling the biggest of the more size-variable Copras, and Patterson’s healthy necks sit down earlier. We slightly preferred Copra’s flavor both raw and cooked right out of the field, but after storage the gap narrowed, with Patterson edging out Copra raw, but not quite as good as Copra cooked. Excellent storage. Adapted to 38-55° latitudes. ④

2472 ***A**: 1/16oz, $3.60* ***B**: 1/8oz, $5.60* ***C**: 1/2oz, $18.00*
***D**: 1oz, $32.00* ***E**: 4oz, $112.00* ***K**: 1#, $430.00*

Clear Dawn - Organic (104 days) Open-pollinated. Clear Dawn was bred out of Copra and introduced by Beth and Nathan Corymb of Meadowlark Hearth after being entrusted to them by biodynamic growers Claire Hall and Don Jason. The best open-pollinated storage onion, Dawn has gotten better and better over years of selection with great storage capability. 8–10 oz average and very hard. Adapted to 38-50° latitudes. ①

2474 ***A**: 1/16oz, $2.90* ***B**: 1/8oz, $4.80* ***C**: 1/2oz, $16.00*
***D**: 1oz, $24.00* ***E**: 4oz, $75.00*

Borrettana Cipollini (105 days) Open-pollinated. Sweet, dependable, easy to handle and delectable, this Italian heirloom is the quintessential boiling and braising onion. Shaped like a button, up to 4" wide (normally 3") but less than 1" thick. Flattened spheres with bright shiny golden skin. Fine-grained mild flesh with a well-developed flavor. Appreciated in soups, stir-fries and shish kebab. Braids beautifully and keeps till late winter. Adapted to 38-50° latitudes. ②

2477 ***A**: 1/16oz, $2.60* ***B**: 1/8oz, $4.00* ***C**: 1/2oz, $9.00*
***D**: 1oz, $14.00* ***E**: 4oz, $42.00* ***K**: 1#, $148.00*

Talon - Organic (110 days) F-1 hybrid. With tremendous Talon comes braggadocio. Nothing subtle about these bronze-brown–skinned storage onions that averaged almost 2 lb, even without irrigation in the 2016 drought. Very uniform tall blocky globes cling to the ground during active growth. Tall disease-resistant tops mirror those strong roots. In 50° storage, our Talons stayed rock hard with no sprouting until mid-May when we finished eating them before discovering their full storage potential. This year, Roberta’s remained unsprouted and edible until late summer. Raw, the flavor starts sweet and builds to a lingering medium pungency. Cooked, they stay firm but succulent; Talon is a full balance of sweet and allium tang. After dying back and curing, a nub of neck may remain that does not affect storage quality. Trim at that natural point of attachment. Seed is film-coated; allowed for organic production. Adapted to 38-50° latitudes. Resistant to DM. ④

2487 ***A**: 1/16oz, $4.20* ***B**: 1/8oz, $6.50* ***C**: 1/2oz, $24.00*
***D**: 1oz, $46.00* ***E**: 4oz, $162.00* ***K**: 1#, $600.00*

Dakota Tears - Organic (112 days) Open-pollinated. Dave Podoll’s breeding breakthrough, Dakota Tears was more than 20 years in the making. Though you might cry when you cut one open—their flavor is robust and oniony—you won’t weep about their impressive production of very hard yellow bulbs with medium-thick necks averaging 1 lb each with no doubles. These matured in late September from an early April start and stored well for Dyrek. Holli Cederholm says hers keep till May under good storage conditions. Adapted to 38-50° latitudes. **OSSI** ☙2009. Ω ①

2489 ***A**: 1/16oz, $2.80* ***B**: 1/8oz, $4.60* ***C**: 1/2oz, $11.00*
***D**: 1oz, $19.00* ***E**: 4oz, $63.00*

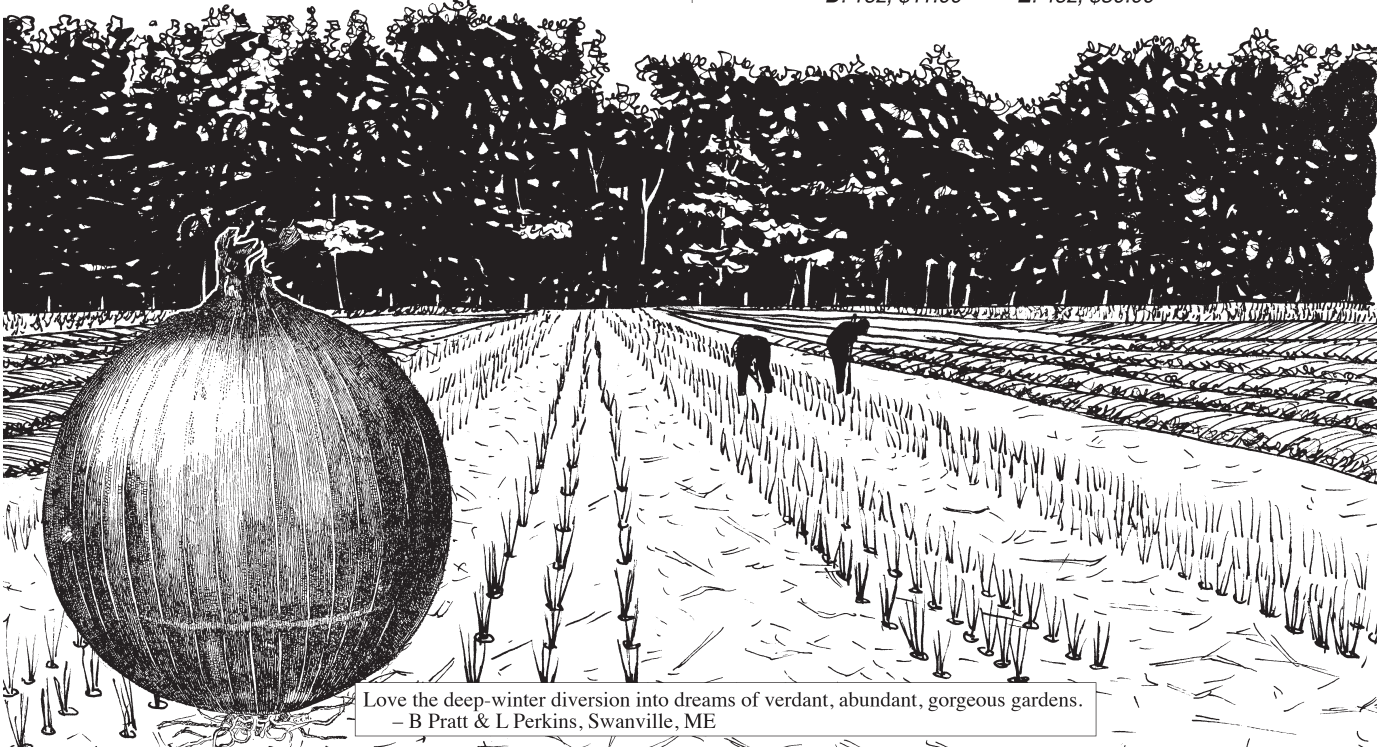
RED SUMMER ONIONS

Cabernet - Organic (90 days) F-1 hybrid. Every season, we northern-tier growers fret over the always-late red onions. Will they fully ripen, cure and keep? Cabernet released us from this worry with fancy red onions ready for fresh use and market in late July. By Aug. 9, two-thirds had lain down, a full week before New York Early began its descent. By Aug. 31, Cabernet was firm, cured and ready for 3–4 months storage. No shortcomings in this classy uniform early red. The 3 1/2" wide, 8 oz single-centered globes slice to the perfect size to top a large burger. Raw, the rings are many and thin, finely textured and crunchy, sweet and slightly spicy. Cooked, the excellent aroma and full sweetness will induce you to use them up long before they reach their storage limit. Adapted to 35-45° latitudes. ④

2445 ***A**: 1g, $3.90* ***B**: 2g, $6.40* ***C**: 8g, $15.00*
***D**: 24g, $42.00* ***E**: 96g, $160.00*

Rossa Lunga di Tropea (110 days) Open-pollinated. The famous Italian heirloom torpedo onion whose name means Long Red of Tropea. Tropea, in Calabria near the southern tip of Italy, is the site of a famous onion festival every August. Elongated like torpedos, these thin-skinned glossy maroon bulbs with lighter interiors are easily sliced into even rings. Sweet, mild and delicious for fall enjoyment. Plants died back in the first week of October for Donna Dyrek, will finish earlier if started indoors March 1. Excellent bunched fresh for midsummer markets. Chefs love them for grilling or braising. Adapted to 35-48° latitudes. ②

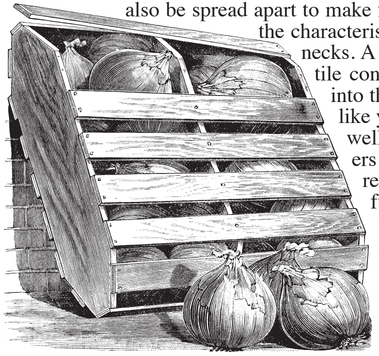
2485 ***A**: 1/16oz, $2.40* ***B**: 1/8oz, $3.80* ***C**: 1/2oz, $7.00*
***D**: 1oz, $11.00* ***E**: 4oz, $30.00*



Love the deep-winter diversion into dreams of verdant, abundant, gorgeous gardens.
– B Pratt & L Perkins, Swanville, ME

RED STORAGE ONIONS

Red Marble (95 days) F-1 hybrid. This hard red variety is the best of its kind. Alan LePage loves how hard they are and how fast they finish. While they can be closely spaced to grow 1–2" baby red pearl onions, they can also be spread apart to make full-sized onions 2–3" across with the characteristic Cipollini flat bottoms and thin necks. A few will grow as big as 4" in fertile conditions. Dark red penetrates deep into the rings. LePage observes that unlike yellow Cipollinis, they always sell well when he displays them at farmers market. "Their stony polished red skin just shines when they are fully finished." Excellent keepers, they store till February or March. Adapted to 38-55° latitudes. ④



2446 ***A**:1/16oz, $2.40*
***B**: 1/8oz, $4.20*
***C**: 1/2oz, $11.00*
***D**: 1oz, $20.00*
***E**: 4oz, $72.00*

Red Mountain (107 days) F-1 hybrid. When we heard from breeder Bejo that Redwing's boots would soon walk out the door, finding a replacement looked like a tough climb. But, our 2018 and 2019 storage onion trial turned out to be an easy stroll up Red Mountain. Also from Bejo Seeds, Red Mountain brings the same large 16–18 oz glossy deep red globes as Redwing, but it sizes more consistently regardless of dry or wet conditions. Red Mountain's neck "sit down" in the field 10 days earlier than Redwing, aiding harvest in unpredictable fall weather. The earlier harvest sacrifices nothing in curing and storage, as Red Mountain keeps like a rock through April with succulent texture and balanced mild sweet onion flavor. When we cooked it after long storage, we thought the bulb and ring of Red Mountain had better color than Redwing. Adapted to 43–65° latitudes. Resistant to PR. ④ **NEW!**

2492 ***A**: 0.5g, $3.60* ***B**: 1g, $6.50* ***C**: 2g, $12.00*
***D**: 4g, $20.00* ***E**: 14g, $38.00*

Red Wethersfield (110 days) Open-pollinated. Grow a piece of history, the onion that made the town of Wethersfield, CT, famous and has been a home-garden favorite for two centuries. First offered commercially in 1834, it was grown extensively for market in the 19th c. and even used as currency in the town. At the height of its onion commerce, Wethersfielders annually shipped more than 5 million lbs to the South and the West Indies. Large (4–5" across) medium-firm purple-red flattened globes, pink-tinged white flesh with red concentric circles, have stronger flavor than most yellow onions. Keeps till late winter. The 1856 Comstock, Ferre & Co. catalog called it "fine-grained, pleasant flavored and very productive." Adapted to 38-50° latitudes. ②

2481 ***A**: 1/16oz, $2.40* ***B**: 1/8oz, $3.80* ***C**: 1/2oz, $9.00*
***D**: 1oz, $13.00* ***E**: 4oz, $32.00*

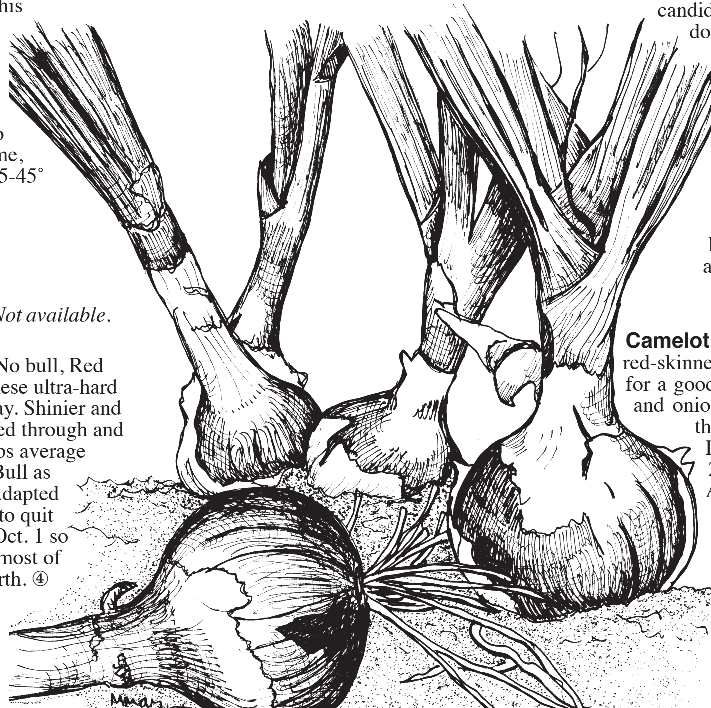
Rossa di Milano - Organic (114 days) Open-pollinated. "The most delicious of all the onions I've grown," says Tom Vigue. This excellent red Italian storage onion is shaped like a buttercup squash without the button. It has the flat square-shouldered top tapering like a barrel to a narrower flat bottom. A few years ago our supplier lost this typical shape. Now Rossa has been reselected by our stateside grower for both form and storage. Tops slow to go down. Encourage the recalcitrant ones by pushing them over. Takes a while in fall to dry. Very hard and keeps a long time, till May for Vigue. Adapted to 35-45° latitudes. ①

2490 ***A**: 1/16oz, $3.10*
***B**: 1/8oz, $5.60*
***C**: 1/2oz, $18.00*
***D**: 1oz, $32.00*

Redwing (116 days) F-1 hybrid. *Not available*. Try **2492** Red Mountain.

Red Bull (118 days) F-1 hybrid. No bull, Red Bull is one good storage onion. These ultra-hard large red globes will keep until May. Shinier and darker than Rossa di Milano and red through and through. 3–4" roots with strong tops average 8 oz. Donna Dyrek rates her Red Bull as very red, very big and very nice. Adapted to 43-65° latitudes. They are slow to quit growing and often won't sit until Oct. 1 so may require too long a season for most of central Maine and areas farther north. ④

2493 ***A**: 1/16oz, $4.40*
***B**: 1/8oz, $6.80*
***C**: 1/2oz, $26.00*
***D**: 1oz, $48.00*
***E**: 4oz, $180.00*

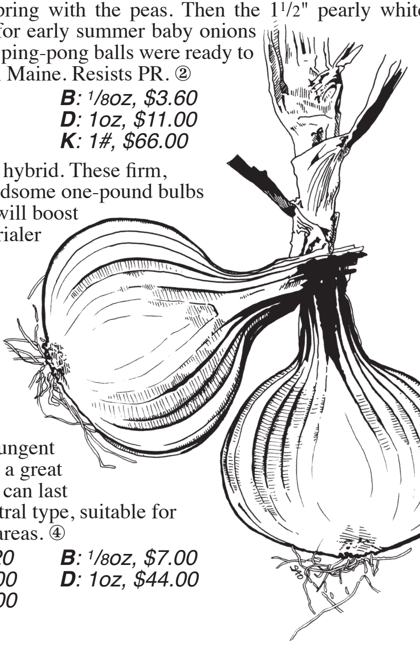


WHITE SUMMER ONIONS

Crystal White Wax (70 days) Open-pollinated. Unlike most onions, these can be direct-seeded in spring with the peas. Then the 1 1/2" pearly white bulbs ripen with the peas for early summer baby onions or pickles. Orbs the size of ping-pong balls were ready to harvest on July 7 in central Maine. Resists PR. ②

2444 ***A**:1/16oz, $2.20* ***B**: 1/8oz, $3.60*
***C**: 1/2oz, $7.30* ***D**: 1oz, $11.00*
***E**: 4oz, $18.00* ***K**: 1#, $66.00*

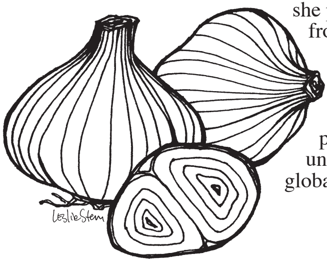
Whitewing (97 days) F-1 hybrid. These firm, almost perfectly round handsome one-pound bulbs with slender strong necks will boost almost anyone's market. Trialer Donna Dyrek, who praises Whitewing lavishly, has grown them even bigger, up to 1 1/2–2 lb. Very early and well adapted to our climate, some years Wing can be harvested as early as mid-late Aug. In cool seasons they stand till Sept. 1. Hard, pleasantly pungent and moderately sweet. Not a great keeper; with proper curing can last till the New Year. Day-neutral type, suitable for mid-latitude and northern areas. ④



2447 ***A**: 1/16oz, $4.20* ***B**: 1/8oz, $7.00*
***C**: 1/2oz, $24.00* ***D**: 1oz, $44.00*
***E**: 4oz, $166.00*

SHALLOTS *A. cepa* (aggregatum group)

Glacier Rose - Organic (100 days) Open-pollinated. Longtime Montana farmer and plant breeder Judy Owsowitz loved the hybrid shallot Prisma for its beauty, taste and long storage. So when she heard it was to be discontinued, she pursued her passion, selecting for those traits from the seed that was still available. Six years later she's come up with the stunning Glacier Rose, named for its rosy color and the sight of Glacier National Park from her farm. The large 3" bulbs, mostly doubles, retain the parent's good flavor and, like Prisma, store until the next year's crop comes in. Despite global warming, this Glacier is here to stay. Ω ①



2441 ***A**: 1/16oz, $2.40*
***B**: 1/8oz, $4.20*
***C**: 1/2oz, $14.00*
***D**: 1oz, $22.00*

Ed's Red - Organic (105 days) Open-pollinated. Several years ago when we were looking for a Prisma replacement we put a couple open-pollinated candidates into our trials. Ed's Red won hands down in taste: full flavored, delicious, sweet and meaty. But the form was not at all uniform. Enter farmer-extraordinaire Beth Rasgorshek, who spent the intervening years selecting for color, vigor, uniformity and size. The result is this newly improved Ed, fresh out of the field. Beth sees it as ideal both for home use and for chefs, and is impressed with how it stands up under weed pressure. These fairly large gorgeous red shallots have storability almost as great as the legendary Prisma. ①

2443 ***A**: 1/16oz, $2.40*
***B**: 1/8oz, $4.00*

Camelot (110 days) F-1 hybrid. Camelot, the darkest red-skinned variety available from seed, is our choice for a good Prisma replacement with the same smooth and onion-y taste. When divided, has a bigger bulb than Prisma, 1–1 1/2" across and 2" long. Donna Dyrek's were out of the ground curing on Sept. 20 from an April 6 start. Can store till April. Adapted to 40-55° latitudes. ~275 seeds/g. ④

2442 ***A**: 0.5g, $3.50*
***B**: 1g, $5.50*
***C**: 2g, $10.00*
***D**: 4g, $17.00*
***E**: 14g, $55.00*
***K**: 28g, $98.00*

LEEKS *A. ampeloprasum* (porrum group)

1 gram packet ~240–360 seeds, 1/16 oz packet ~400–600 seeds; 1 oz, 6,400–9,600. All leeks are **open-pollinated**.

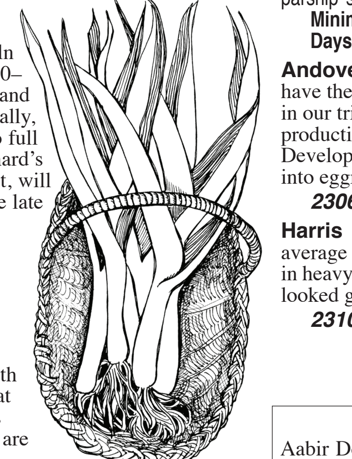
Culture: Start with onions and transplant out almost as soon as the ground can be worked. Set 6–12" apart in trenches in well-dug beds with generous quantities of organic matter. Irrigate seedlings whenever the topsoil dries out.

Summer leeks have tall shanks above ground and should be harvested before severe frosts. Hardier leeks have broader, shorter shanks and will hold till November. Leeks brought into the root cellar will survive almost all winter if heeled into soil.

SUMMER LEEKS

King Richard - Organic (75 days) This distinctive refined early leek once again rules supreme—reselected and brought back to its elegant form with upright shanks a foot long to the first medium green leaves. Ready in late August and can withstand light frosts but should be harvested before those heavily frosted nights in late October. ①

2407 ***A***: *1/16oz, $3.10* ***B***: *1/8oz, $5.20*
C: *1/2oz, $12.00* ***D***: *1oz, $22.00*
E: *4oz, $62.00*



Lincoln (75 days) A leek with a dual purpose, Lincoln may be sown thickly like scallions, harvested in 50–60 days and bunched for upscale direct markets and discerning chefs. Or, transplanted more conventionally, they may be allowed to grow another three weeks to full size. Shanks even longer and sleeker than King Richard's with delicate sweet leek flavor. Ready in late August, will withstand light frosts, but should be harvested before late October. ④

2408 ***A***: *1/16oz, $4.40* ***B***: *1/8oz, $8.00*
C: *1/2oz, $30.00* ***D***: *1oz, $58.00*
E: *4oz, $210.00*

AUTUMN LEEKS

King Sieg - Organic (84 days) Beth Rasgorshek of Canyon Bounty in Idaho crossed King Richard with Siegfried Frost to create a versatile stable cultivar that has some of the good attributes of both. Sieg appears to have inherited the most from Siegfried. Its shanks are intermediate between the long King Richard and the short Siegfried, about 6" long but with a wonderful 3" thickness for a wide edible area. It also has some of Siegfried's delightful blue-green coloration and delayed maturity. **OSSI** ❧2005. Ω ①

2411 ***A***: *1/16oz, $2.80* ***B***: *1/8oz, $4.60* ***C***: *1/2oz, $10.00*
D: *1oz, $15.00* ***E***: *4oz, $44.00*

Lancelot (90 days) "Great quality, disease resistance and size," says Tom Vigue. A dependable heavy-yielding virus-tolerant bolt-resistant leek. Suitable for late-fall harvest and possible overwintering in climates warmer than ours. Uniform 12–14" shafts with good thickness. ④

2421 ***A***: *1g, $4.20* ***B***: *2g, $7.00* ***C***: *4g, $12.00*
D: *14g, $32.00* ***E***: *28g, $56.00*

WINTER LEEKS

Bleu de Solaize - Organic (110 days) This hard-to-find French heirloom is so-named because its dark green leaves sometimes develop a tinge of blue during cold spells. Selected by our growers for hardy fat medium-long shanks with mild flavor. Good in soups. Dates back to the 19th century. Adam Tomash and June Zellers have successfully overwintered it in Zone 5 and trialer Donna Dyrek in Zone 4 with only straw mulch for protection. ①

2425 ***A***: *1/16oz, $2.90* ***B***: *1/8oz, $4.70* ***C***: *1/2oz, $10.00*
D: *1oz, $15.00* ***E***: *4oz, $48.00*

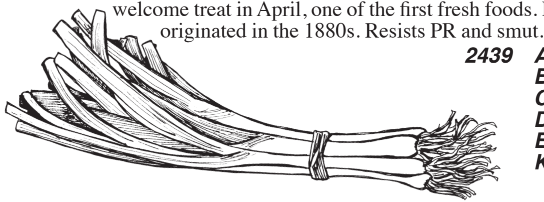
Siegfried Frost - Organic (120 days) Making much of its growth below ground where it is protected from the cold, this leek often withstands the rigors of winter to offer a delectable spring treat. With stalks growing as much as 4" across there is plenty to enjoy. Most will survive winters with good snow cover if you hill your leeks and mulch after the ground freezes. Open winters with fluctuating temperatures and multiple freezes and thaws are the enemy you must overcome. ① **BACK!**

2426 ***A***: *1/16oz, $2.80* ***B***: *1/8oz, $4.60* ***C***: *1/2oz, $10.00*
D: *1oz, $15.00*

SCALLIONS *A. fistulosum*

Direct-seed in spring or fall. For a steady market crop, seed every 2 weeks all season.

Evergreen Hardy White (65 days) Open-pollinated. Also known as Nebuka, a perennial bunching onion. If overwintered in the ground, develops clumps of scallions in the spring that can be harvested or divided and replanted. A welcome treat in April, one of the first fresh foods. Heirloom from Japan originated in the 1880s. Resists PR and smut. ~15,000 seeds/oz. ④



2439 ***A***: *1/16oz, $2.20*
B: *1/8oz, $3.00*
C: *1/2oz, $5.80*
D: *1oz, $8.00*
E: *4oz, $15.00*
K: *1#, $50.00*

PARSNIPS

Pastinaca sativa

~7,000 seeds/oz. Both varieties are **open-pollinated**.

Culture: Seed is short-lived; if you are planning to use old seed, germ test in paper towels before sowing. Slow to germinate (14–21 days). Prepare a deep seedbed and keep it moist with frequent watering until emergence. Sow about 1" apart in mid-spring. Thin to 2–3". Parsnips require a full growing season. Suitable for harvest after frost for late fall delights. Parsnips left to overwinter in the ground will nearly triple their fall sugar content. For the best early spring treats, harvest as soon as possible before the plants resume growth. Roots become woody as the plants re-grow. Save some plants for seed in year two. Plants will shoot up 6' before July-Aug. seed harvest. Homegrown parsnip seed often is better and more viable than any you can buy.

Minimum germination temperature 46°, optimal range 55–77°. Days to maturity are from date of seeding.

Andover - Organic (120 days) Always a best-seller when we have the seed for this outstanding variety—an absolute knockout in our trials. Those with good tilth can anticipate consistent production of refined tapered cylindrical roots 12–14" long. Developed by the UMinn. One of the best for grating and stuffing into eggrolls, strudels and veggie pies. ①

2306 ***A***: *1/8oz, $2.80* ***B***: *1/2oz, $7.50*

Harris Model (120 days) Sweet-flavored smooth tapered roots average 10". For better performance, prepare raised beds, especially in heavy soils. Don't believe stories that this strain is running down. It looked great in our plots. ④

2310 ***A***: *1/8oz, $1.80* ***B***: *1/2oz, $2.40*
C: *1oz, $3.60* ***D***: *4oz, $6.30*
E: *1#, $18.00* ***K***: *5#, $80.00*

Looking Ahead with 2020 Vision: Aabir Dey

Aabir Dey is the Director of The Bauta Family Initiative on Canadian Seed Security, a program of the nonprofit SeedChange. Aabir helps Canadian farmers increase the quality, quantity and diversity of regionally adapted seed suitable for ecological farming conditions. It's a brilliant model where the national organization through regional coordination benefits farmers on the local level, who then complete the loop by informing the program of their needs. Some of those needs are for on-farm research and training, seed conservation at all skill levels, participatory plant breeding of regionally adapted varieties within ecological methods, and networking. Nikos caught up with Aabir on his way to a farm visit:

He demurred on critiquing the larger agricultural system because all his work has been with ecological and organic agriculture but said "if there's a place we've gone off track it's ignoring the public service that farmers provide. A farmer is someone growing food and nourishment for their community while at the same time having to know every single trade, plus the full range of plant science, botany and ecology, as they participate in the economy with efficient business skills. Moreover they preserve soil health, save the seed system, save the food system and preserve diversity—all while providing affordable food. We as a public don't realize that; we lack appreciation and awareness for how essential that service is in our community." His solution would be to "develop appreciation for the wide positive impact of agricultural food providers." One way is through public policy: "We need to find ways to reward farmers for all the ecological and stewardship services they provide…pollinator habitat, soil health, seed diversity, carbon sequestration, biodiversity, water health…. We need to recognize that contribution to the larger ecology or otherwise the farmers will burn out."

There's another aspect he'd bring into focus: "In Canada, the movement towards reconciliation is opening opportunities to rethink how to live in a more reciprocal way with the land, with the ancestors of the land, and to understand how to decolonize our relationship with the land. This will go a long way towards changing this thinking that we have as settlers, towards the development of real, authentic relationships (with First Nations)…to heal relationships and the wrongs we've done to indigenous peoples, the land, and environment."

What makes him hopeful? The answer is so short and muffled by cell-static that I ask him to repeat it: "Seeds."

"I have a couple words to describe farmers: innovative and generous. Plus they are absurdly nice—and kind. They are innovative as seed growers and they are so generous with that knowledge, sharing those innovations with the broader farming community. They are very much like nature, like seeds. We all know that if you plant one seed, you have an abundance of seeds that follow. The generosity of plants—I can't wrap my head around it—the generosity that comes from just one plant compels you to share seeds…you always have more than you need. It necessitates community."

That is a hopeful thought, indeed.

Looking for ramps? We might have a source for seed, but it was uncertain at press time. *Please check our website.*

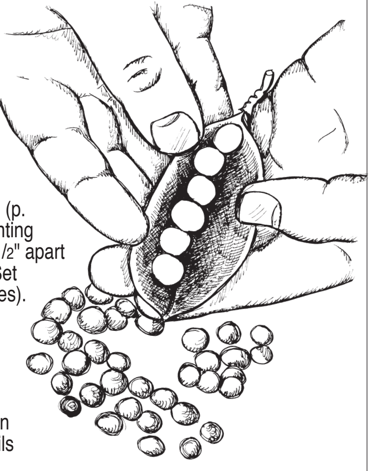
We ship seeds to Canada!

PEAS

Pisum sativum

2 oz packet sows 25 ft; 1 lb, 200 ft. Avg 250 seeds/2 oz pkt.

All peas are **open-pollinated**.



Culture: Peas are legumes with moderate fertility requirements. Avoid excess nitrogen: they can fix their own. Use **798** Legume Inoculant as an aid. They prefer cool, moist weather and dislike dry heat. Sow as early as ground can be worked for best yields. All peas produce more when staked; varieties over 2$^{1}/_{2}$' must be supported. Use either **8859** Trellis Nettting (p. 141) or chicken wire. Install support at planting time to avoid disturbing seedlings. Plant 1$^{1}/_{2}$" apart on each side of supports in double rows. Set supports for rows 3' apart (5' for tall varieties).

Not well adapted to southern climates. Smooth-seeded peas germinate better in colder soils than wrinkle-seeded peas, but are not as sweet. **Minimum germination temperature 40˚; optimal range 50–75˚.**

Greens of young pea plants are good in salad mix or lightly cooked. Remove tendrils (they tend to be coarse).

Diseases:

CTV	Curly Top Virus	PM	Powdery Mildew
DM	Downy Mildew	PSV	Pea Streak Virus
F	Fusarium	W	Common Wilt race 1
PEMV	Pea Enation Mosaic Virus		

Powdery mildew looks like someone sprinkled talcum powder over the vines. It spreads rapidly when picking occurs in hot dry weather. Pick in early morning while the dew is still on the foliage to slow its spread and ensure best flavor. To combat the fungus, try **8702** Actinovate (p. 137). Fusarium causes vines to dry out, yellow, then brown and die. As a preventive, always sow peas on well-drained soil. Fusarium-infested soils are said to be pea sick. Rotate out of legumes for at least 4 years. Brassicas, especially mustards, are good disease-suppressant successions.

Off-types in peas continue to be a problem across the industry. Over the past several years we have eliminated some old favorites that got beyond the bounds of what is acceptable and added several more reliable varieties. We'll keep working at it!

Days to maturity are from date of seeding.

SHELL PEAS

Strike (52 days) You won't strike out on early pea sales with this winner in your starting lineup. A first-early shell pea with an average of 6 dark green peas in 2$^{3}/_{4}$" pods and a flavor that is sweeter and more complex than other early peas. When both veteran trialer Donna Dyrek and staffer Roberta agree, we know we're in the game. Vines about 2' can be grown either with or without support. PRR tolerance and resistance to F1, an advantage when planting in the cold wet soils of northern spring. **PVP**. ⑥

720 ***A**: 2oz, $2.20* ***B**: 8oz, $5.50* ***C**: 1#, $8.20*
***D**: 5#, $25.00* ***E**: 10#, $40.00* ***K**: 25#, $90.00*

Topps (56 days) Those who grew up during the heyday of our national pastime associate the name with bubble gum and baseball cards. Even though we're talking peas, not hardball here, we still appreciate Topps. In the 2015 season in Zone 6, Topps, given ample rainfall in late spring, notched about 5–7 peas per pod. Not bad for a short vine (22–23") that bursts onto the second-early scene with a concentrated set of very dark blunt 3$^{1}/_{2}$" pods. In Central Maine second early meant July 10 ripeness, whereas in W. Tisbury, MA, Tom Hodgson and Christine Gault shelled their first Topps on June 8 and won a First Peas contest. Production is ample but brief; within a week the plants are all picked out. As for the flavor? "Makes your mouth water for more," said one taster. Others compared it closely with Early Frosty except Topps is easier to tell maturity and to shell. Resists F1. ⑥

727 ***A**: 2oz, $2.30* ***B**: 8oz, $5.80* ***C**: 1#, $9.00*
***D**: 5#, $30.00* ***E**: 10#, $50.00*

Emerald Archer - Organic (65 days) What can scale a pea fence with a plethora of tendrils, pump out a super abundance of peas per pod midseason, all the while delighting a six-year-old? This afila-type pea is quite productive, setting in pairs and having 10 peas to the pod. Not an off-type among them, and tasty, too. The upright habit of the 36–42" plant makes for easy picking. And gardening grandson Evan declared these afila tendrils were the best in the patch; the adults concurred. Sure to hit the mark. ⑥

758 ***A**: 2oz, $2.50* ***B**: 8oz, $6.20* ***C**: 1#, $11.00*
***D**: 5#, $50.00* ***E**: 10#, $85.00* ***K**: 25#, $190.00*

If you can grow good peas, in lots around 50–200 lbs, in areas without prevalent pea diseases or pea weevils, and you want to work with us, please let us know.

Green Arrow - Organic (65 days) The pea preferred by commercial growers, always on target for heavy yields. Sets the standard for midseason varieties. Long pods with up to 10 peas per pod (more typically 7–8) on vines up to 3'. Seems to withstand miserable and extreme weather better than other varieties. Easy-to-pick pods tend to set in pairs at the top. Tolerant to F, DM, CTV, W. ①

761 ***A**: 2oz, $3.20* ***B**: 8oz, $8.00* ***C**: 1#, $12.00*
***D**: 5#, $52.00* ***E**: 10#, $96.00* ***K**: 25#, $225.00*
***L**: 50#, $400.00*

Perfection 326 (66 days) We haven't been able to find any true strains of Maestro on the market, but those searching for that revered variety may want to try Perfection. These 3–4' vines showed great health and vigor that translated into an abundant crop of 3$^{1}/_{2}$" pods, usually with 7–8 peas each. They outyielded the so-called Maestro strain we trialed alongside them. They hold color and texture well, resist wilts and drought, and are extraordinarily sweet and meaty. ③

762 ***A**: 2oz, $2.10* ***B**: 8oz, $5.20* ***C**: 1#, $8.00*
***D**: 5#, $24.00* ***E**: 10#, $40.00* ***K**: 25#, $75.00*

Iona Petit Pois (68 days) *Dropped because of slow sales.*

Champion of England (70 days) The British take their peas and their beer seriously. And legend has it that this superb 1840s English shell pea's original stock seed was traded for a pot of beer. Must have been quite the pint, 'cause this is one heck of a pea! Even in the dry heat of spring 2018, these 5–7+' vines with white flowers showed excellent vigor and health. Setting steadily and heavily, the 4x$^{3}/_{4}$" pods contained 8–10 very sweet and tender large peas. Champion exhibits a classic trait that Americans are less accustomed to: for best flavor without starchiness, pick when pods are large but still have an airy "give," rather than waiting till pods are filled tight. ②

780 ***A**: 2oz, $4.40* ***B**: 8oz, $15.00* ***C**: 1#, $24.00*
***D**: 5#, $90.00* ***E**: 10#, $170.00* ***K**: 25#, $400.00*

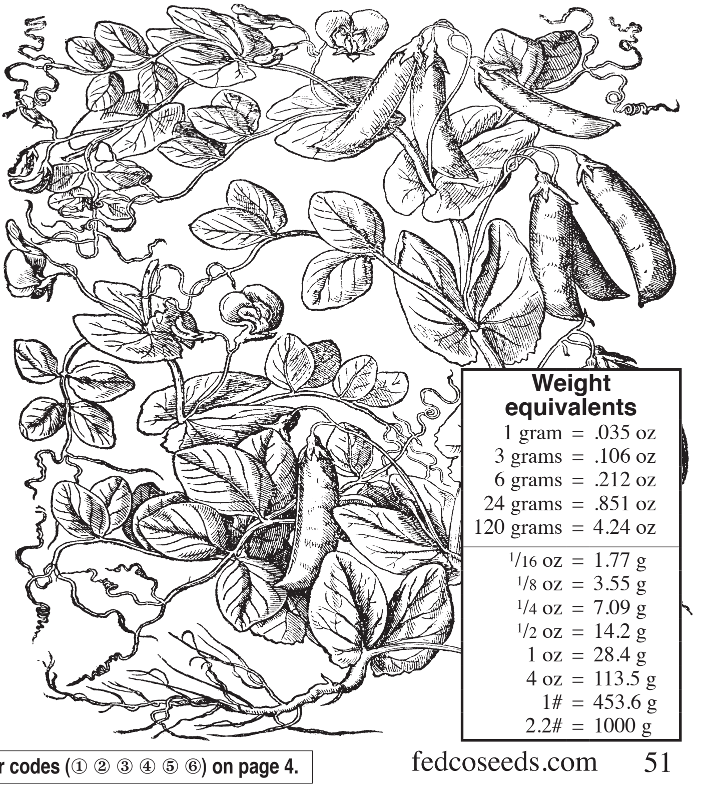
Lincoln (70 days) This old English favorite is one of the sweetest peas and the best for fresh garden grazing. First offered in America by J.M. Thorburn in 1908, the year before the first Lincoln penny. Vines up to 3' bear 3–3$^{1}/_{2}$" slender curved pods with heaviest production in mid-July. Consistently 6–8 peas per pod. In 2004 our 60' row produced an all-time record 33 lb. Lincoln loves cool rainy Julys but produces much less when July is hot and dry. Susceptible to PM and other diseases so a good choice only if you can get on your ground in early spring. Tolerant to W. ③

781 ***A**: 2oz, $2.30* ***B**: 8oz, $5.80* ***C**: 1#, $9.00*
***D**: 5#, $26.00* ***E**: 10#, $40.00* ***K**: 25#, $75.00*

Mayfair - Organic (72 days) We need a grower. *Not available in 2020.*

Alderman or **Tall Telephone** (75 days) All-America winner Mr. Big got the hype, but failed to supplant this old-time favorite as our #1 tall pea. In our trial, Alderman topped Mr. Big in peas per pod, 7.65–6.94, in yield 38–28 lb per 100 row feet, and in flavor. Alderman boasts vines of 5–6' or more under fertile conditions; needs strong staking and frequent picking. Introduced by renowned pea breeder Thomas Laxton around 1891 and first sold by Burpee in 1901. Resistant to W. ③

792 ***A**: 2oz, $2.20* ***B**: 8oz, $5.50* ***C**: 1#, $8.00*
***D**: 5#, $24.00* ***E**: 10#, $36.00* ***K**: 25#, $72.00*



Weight equivalents

1 gram = .035 oz
3 grams = .106 oz
6 grams = .212 oz
24 grams = .851 oz
120 grams = 4.24 oz

$^{1}/_{16}$ oz = 1.77 g
$^{1}/_{8}$ oz = 3.55 g
$^{1}/_{4}$ oz = 7.09 g
$^{1}/_{2}$ oz = 14.2 g
1 oz = 28.4 g
4 oz = 113.5 g
1# = 453.6 g
2.2# = 1000 g

SNOW PEAS

Harvest snow peas before pods fill out.

Oregon Giant (60 days) This Oregon State University release bred by Dr. James Baggett is our most popular snow pea. A giant selection from a giant of a breeder, Oregon Giant is distinguished for its sweet rich green fat wide 4–5" pods good for stir-fries, steaming and eating out of hand. Retains sweetness so may be picked a little plumper than the thin-podded varieties. We recommend staking the 3–4' vines. Resistant to PEMV, PM and F1.

Oregon Giant ⑥
818 ***A***: *2oz, $2.30*
B: *8oz, $5.50*
C: *1#, $8.30*
D: *5#, $25.00*
E: *10#, $45.00*
K: *25#, $90.00*
L: *50#, $165.00*

Oregon Giant - Organic ①
819 ***A***: *2oz, $3.20* ***B***:*8oz, $8.50*
C: *1#, $14.00* ***D***: *5#, $55.00*
E: *10#, $100.00* ***K***: *25#, $240.00*
L: *50#, $410.00*

Green Beauty (60 days) Thanks to superb breeding by genius Alan Kapuler, revered by his friends as "Mushroom," we get to enjoy this outstanding purple-flowered snow pea. Its lush foliage and astounding production made a huge impression in our trials. Long 5" light green pods, a few with pink blush, ridiculously tasty even when filled out. Flowers are in two tones. Stake this rampant baby; it can grow 7–8' vines. **Breeder Royalties.** ②
820 ***A***: *2oz, $4.50* ***B***: *8oz, $16.00* ***C***: *1#, $28.00*
D: *5#, $120.00* ***E***: *10#, $220.00*

Blizzard - Organic (61 days) Named Blizzard because this snow pea produces an avalanche of sweet thin 3" pods in heavily concentrated sets, not because it can be planted in the snow. It is still the best intermediate-vined snow pea we have ever tried. The 3–3½' vines setting peas in pairs, making for fast and easy picking. In the dog days of summer this is one blizzard you'll be hoping hangs on a few days longer. ①
822 ***A***: *2oz, $2.90* ***B***: *8oz, $8.00* ***C***: *1#, $13.00*
D: *5#, $55.00* ***E***: *10#, $95.00* ***K***: *25#, $200.00*
L: *50#, $375.00*

Oregon Sugar Pod II (62 days) Dr. Baggett's biggest claim to fame and still the most popular edible-podded pea in the world (although our customers greatly prefer Oregon Giant). Baggett left a lasting legacy of superior varieties and support for open-source plant breeding. His short-vined snow pea from Oregon State University features 4" pods on 2–2½' vines. Difficult to pick because fruit tends to set within foliage. Good choice in sandy soils or under dry conditions. Tolerant to F, PM, PEMV, PSV, resistant to W, it incorporated more disease tolerance than other pea varieties of that era. ⑥
826 ***A***: *2oz, $2.30* ***B***: *8oz, $5.80* ***C***: *1#, $9.00*
D: *5#, $26.00* ***E***: *10#, $48.00* ***K***: *25#, $95.00*
L: *50#, $170.00*

SNAP PEAS

Don't pick snap peas too soon: snaps taste sweetest when completely filled out.

Sugar Ann - Organic (58 days) 1983 Silver All-America winner bred by Calvin Lamborn and named for one of his daughters. Very popular both with home gardeners and commercial growers. The earliest snap pea, ripening in Central Maine around June 20, earlier in warmer areas, when customers are still excited about peas and greedy to purchase them in quantity. Alan LePage says good timing is crucial for optimal root development, the key to high yields. If you sow early into cool soil with good organic matter and your soil doesn't heat up too fast, they produce bushels and bushels well into July. He has sown as early as Mar. 18 in a warm spring, more commonly in early April. Very good quality, sweetest of the dwarf snap peas. Not as heavy-yielding as tall Sugarsnap. Use the 2' vines to start the season. Allow extra space between rows if you do not stake. Still has a small percentage of off-types. Resistant to W. ①
883 ***A***: *2oz, $3.20* ***B***: *8oz, $7.80* ***C***: *1#, $12.00*
D: *5#, $50.00* ***E***: *10#, $85.00* ***K***: *25#, $210.00*
L: *50#, $390.00*

Mega - Organic (64 days) Vigorous 3' vines are heavily laden with slightly curved crisp juicy 4" snap pods that reach maximum sweetness when they are really chubby. Between Sugar Ann and tall Sugarsnap in vine height and maturity, but sturdier vines than either. First offered by Territorial. We thank Rebecca Slattery of Persephone Farm in Indianola, WA, for providing us with stock seed. In her words, "Though not as sweet as Sugarsnap, their shorter vines, productivity and delicious pea flavor put them in a class of their own. As a market gardener I find that their heft helps us collect a huge poundage in a very short time." Resists PEMV. ①
884 ***A***: *2oz, $3.20* ***B***: *8oz, $7.80* ***C***: *1#, $12.00*
D: *5#, $50.00* ***E***: *10#, $85.00* ***K***: *25#, $210.00*

Amish Snap Pea (62 days) Before Drs. Lamborn and Parker bred the now-epic 1952 Sugarsnap, lesser-known precursors called *mangetout* ('eat all' in French) peas and "butterpeas" were curiosities of the 18th and 19th c. Whether derived from those older stocks or from an errant but similar shell-snow pea cross as Sugarsnap, this tall and tasty heirloom has long been enjoyed in Amish communities. Vines grow quickly to 5–6' tall, the white flowers set slender and tender 3" sweet snaps. Beyond the pleasing juicy flavor, the earliness of Amish surprised us in our 2018 trial, beating shorter Cascadia to the first picking! While Cascadia's ongoing yield eclipsed Amish eventually, we found Amish delivers the "tall taste" that only full-height snaps have. For best eating, pick Amish when not fully plump and before dusky grey tones shade the green pods. ②
885 ***A***: *2oz, $4.00* ***B***: *8oz, $12.50*
C: *1#, $21.00* ***D***: *5#, $80.00*
E: *10#, $150.00* ***K***: *25#, $350.00*

Cascadia (65 days) It's a snap to grow Cascadia. Ripening about a week later than Sugar Ann on slightly taller (2½') vines, Cascadia sends a cascade of 3" pods, longer and darker green than Ann's and equally sweet. Deborah Dorland of Salem, SC, found them to be the best of several snap pea varieties in her southern locale. David Nonnenmacher of Hawley, PA, reports "great yield on a medium-height plant; can never have too many of these." Developed by Dr. Baggett, tolerant to F & PM, and the first pea bred to be resistant to PEMV.

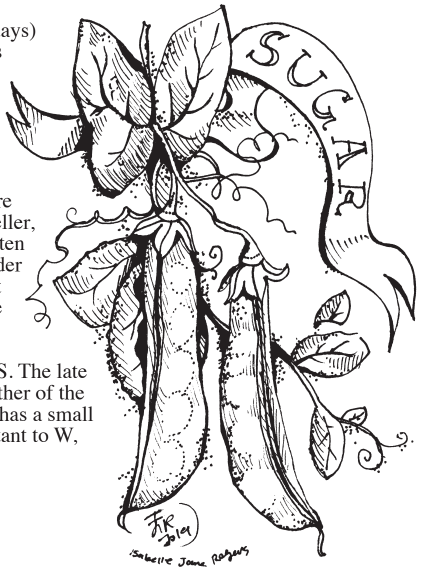
Cascadia ⑥
888 ***A***: *2oz, $2.30* ***B***: *8oz, $5.80* ***C***: *1#, $9.00*
D: *5#, $30.00* ***E***: *10#, $47.00* ***K***: *25#, $100.00*
L: *50#, $180.00*

Cascadia - Organic ①
889 ***A***: *2oz, $3.50* ***B***: *8oz, $8.00* ***C***: *1#, $12.00*
D: *5#, $49.00* ***E***: *10#, $95.00* ***K***: *25#, $230.00*
L: *50#, $390.00*

Tendersweet (65 days) This 2' tall snap pea is aptly named by the breeder: upon taking the first nibble from our trial planting, "Wow! Tender!" was the first impression, quickly followed by "and sweet!" Tendersweet bears 2½–3" dark green and slightly curved snap pods earlier and more prolifically than Sugarheart, which it replaces. Even in a hot 2018 spring, we found Tendersweet to have a longer picking window than most quick and short types. Needs light trellis support. Resistant to F1 and PM. ⑥
891 ***A***: *2oz, $2.30* ***B***: *8oz, $5.80* ***C***: *1#, $9.00*
D: *5#, $30.00* ***E***: *10#, $50.00* ***K***: *25#, $100.00*

Super Sugarsnap (66 days) Super Sugarsnap is slightly earlier and shorter (a bit over 5') with about two-thirds the set of Sugarsnap but more concentrated over a shorter picking period. Perhaps a tad less sweet than its taller counterpart, Super has PM resistance, an important plus, and its pods are a bit more curved. Very similar to Sugarsnap in flavor and texture. Must be trellised. **PVP**. ⑥
894 ***A***: *2oz, $2.90* ***B***: *8oz, $7.40* ***C***: *1#, $11.00*
D: *5#, $34.00* ***E***: *10#, $60.00* ***K***: *25#, $145.00*
L: *50#, $260.00*

Sugarsnap - Organic (68 days) One of the very best raw treats in the garden, far tastier than the dwarf varieties, although more work to grow. Tall 5–7' vines need strong stakes. Pods reach superb sweetness only when completely filled. Then they are incomparable. Always a top seller, this breakthrough variety was ten years in the making after breeder Calvin Lamborn made his first cross in 1969. Upon its release Sugarsnap was awarded the coveted AAS Gold Medal and later voted the #1 all-time AAS. The late Lamborn was known as the father of the snap pea. Our production still has a small percentage of off-types. Resistant to W, very susceptible to PM. ①
893 ***A***: *2oz, $3.20*
B: *8oz, $8.00*
C: *1#, $13.00*
D: *5#, $60.00*
E: *10#, $98.00*
K: *25#, $225.00*
L: *50#, $400.00*



Guard-N Combo Legume Inoculant Leguminous plants can add nitrogen to the soil—if they can host the right bacteria. This combination of strains inoculates the roots of the legumes that most farmers and gardeners plant. For all peas including sweet peas and cowpeas; beans, limas, favas, soybeans, lentils and peanuts. For home gardens, sprinkle inoculant on slightly moistened seed, just before planting.
798 ***A***: *treats 8#, $6.00* ***B***: *treats 50#, $10.00*

PEPPERS

Capsicum annuum

Culture: Start indoors in March or April. Set out in June. Black plastic highly recommended. Very tender, will not tolerate frost, dislike wind, will not set fruit in cold or extremely hot temperatures or in drought conditions. **8874-7** Row cover (p. 141) improves fruit set in windy spots. Pick first green peppers when they reach full size to increase total yield significantly. Green peppers, though edible, are technically not ripe. Peppers ripen to red, yellow, orange, etc.

Minimum germination soil temperature 60˚, optimal range 68-95˚.

Diseases:

BLS	Bacterial Leaf Spot
TMV	Tobacco Mosaic Virus
CMV	Cucumber Mosaic Virus

Days to full-color maturity are from transplanting date.

SWEET RED BELLS

~120–175 seeds/g.

Takii's New Ace (60 days) F-1 hybrid. A cinch to grow in the North. CR, no pepper pro, reported counting 54 full-sizeds and 12 baby peppers on his 11 plants on Sept. 8, 2014, a good pepper year. Resists blossom drop even in adverse weather so that almost every flower produces. Fruits thin-walled, elongated, not blocky, turn red early, good for the home garden. Takii's is an improvement on the old strain, producing large pointy peppers, just not classic blocky 4-lobed commercial peppers. Janine Welsby responds, "Don't damn them with faint praise! Still the only pepper that consistently ripens gorgeous red bells for us." ⑤

3701 ***A**: 20 seeds, $2.60* ***B**: 60 seeds, $4.40*
***C**: 200 seeds, $8.50* ***D**: 500 seeds, $18.00*
***E**: 1,000 seeds, $32.00*

Peacework - Organic (65 days) Open-pollinated. An exciting early red bell pepper bred by Molly Jahn and George Moriarty with King of the North and Early Red Sweet in its parentage. Each small plant in our trial vine-ripened about 6 medium-thick-walled peppers with good flavor and full-bodied sweetness. A product of farmer-breeder collaboration starring CSA-grower Elizabeth Henderson and her team at Peacework Farm in cooperation with the Organic Seed Partnership, the California Pepper Commission and university breeders, Peacework is a stabilized open-pollinated variety. This improved production has better leaf cover and looked gorgeous in the field. Seed from this variety is sold under license and a portion of the proceeds go to support public vegetable breeding at Cornell. ❧2008. ①

3704 ***A**: 0.2g, $2.80* ***B**: 0.4g, $4.00* ***C**: 1g, $6.00*
***D**: 2g, $9.00* ***E**: 4g, $15.00*

Lady Bell (68 days) F-1 hybrid. An early elongated bell with 3–4 lobes that we chose as a replacement for North Star. Fruits ripen from rich green to attractive bright red. A good producer of 3x5" bells, juicy and sweet with a hint of spiciness. Even in cool conditions, each plant sets 3–8 fruits. Developed by Harris. ⑤

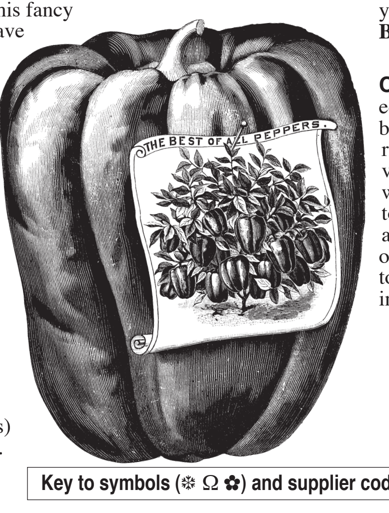
3710 ***A**: 20 seeds, $3.30* ***B**: 60 seeds, $7.00*
***C**: 200 seeds, $19.00* ***D**: 500 seeds, $38.00*
***E**: 1,000 seeds, $62.00*

King of the North - Organic (70 days) Open-pollinated. Back in the late '80s when Seed Savers Exchange co-founder Kent Whealy keynoted at the Common Ground Fair we asked him to suggest a pepper that would ripen in the North. His suggestion was King, and it has been our most popular open-pollinated bell ever since. A good choice if you want early marketable blocky peppers. Prone to blossom-drop in heat. ①

3713 ***A**: 0.2g, $2.30* ***B**: 0.4g, $2.80* ***C**: 1g, $4.30*
***D**: 2g, $6.50* ***E**: 4g, $10.00*

Revolution (72 days) F-1 hybrid. The political revolution is going to take a lot longer to mature than this pepper. This fancy quality sweet bell pepper allows CR to have a red September and Donna Dyrek, a zone farther north, a red October. Juicy and delicious, it boasts the stoutest square walls imaginable. Superb yields of "nice hefty thick-walled fruits," says Jason Kafka, some in excess of 1 lb. Elaine Carlson relates, "I finally had success growing good sweet peppers 12–14 oz each thanks to Kafka's recommendation. No more thin-walled peppers for me." Expensive seed. Resists BLS, tolerant to CMV. ⑤

3716 ***A**: 20 seeds, $4.40*
***B**: 60 seeds, $11.00*
***C**: 200 seeds, $28.00*
***D**: 500 seeds, $63.00*
***E**: 1,000 seeds, $110.00*


THE BEST OF ALL PEPPERS.

Staddon's Select - Organic (74 days) We need a grower. *Not available in 2020.*

SWEET BELLS of Other Colors

Gilboa - Organic (66 days) F-1 hybrid. Our favorite blocky **orange** bell pepper. Gilboa is loaded with thick-walled crunchy squat bells, as many as a dozen per plant, with an engaging fruity flavor. Early. Donna Dyrek started harvesting ripe ones as early as mid-August. ③

3706 ***A**: 20 seeds, $2.70* ***B**: 60 seeds, $5.60*
***C**: 200 seeds, $13.00* ***D**: 500 seeds, $28.00*
***E**: 1,000 seeds, $50.00*

Golden Star (72 days) F-1 hybrid. With its large 4-lobed 4" glossy thick-walled blocky **yellow** peppers, this Star filled a gap in our selection admirably, a prolific colored Cal Wonder–type adapted to the North, even though bred in Israel. On Sept. 26 one plant sported 7 fruits, and another, 10. Our trialer describes them as "nice, sweet and crispy." Plants boast generous leaf canopies. Ripened in Zone 4 Hartland, ME, around the first of September. ③

3718 ***A**: 20 seeds, $2.80* ***B**: 60 seeds, $4.80*
***C**: 200 seeds, $12.00* ***D**: 500 seeds, $23.00*
***E**: 1,000 seeds, $36.00*

Purple Beauty - Organic (74 days) Open-pollinated. Tom Vigue asserts that this Beauty "germinates with more vigor than any other pepper," and 18–20" plants produce good yields of blocky 3x3" fruits that ripen from purple to green to deep red as they mature. Aptly named, the fruits are incredibly striking in their purple phase. "Year after year it has great flavor and great beauty in all stages," affirms Vigue. Purple peppers reveal green interiors when sliced, and turn green in their entirety when cooked. Trialers noted that this organic production was loaded with peppers while the plants from conventionally grown seed were not. ①

3723 ***A**: 0.5g, $2.40* ***B**: 1g, $3.30* ***C**: 2g, $5.00*
***D**: 4g, $7.00* ***E**: 28g, $28.00*

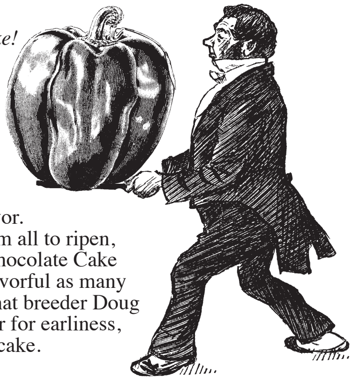
Flavorburst (75 days) F-1 hybrid. Citrus flavor comes to the world of sweet peppers! A Burpee taste-test winner, the 4–6" blocky bells begin the color of Granny Smith apples and ripen to a lovely shade of **goldenrod**. Thick-walled, crisp and juicy, the expected peppery bite overlaid with a zesty surge of lemon. Great appetizers, salad enhancers or stuffers. Tends to wedge its fruits into branches making it hard to harvest quickly without damaging the plant. ④

3729 ***A**: 20 seeds, $3.50* ***B**: 60 seeds, $8.50*
***C**: 200 seeds, $24.00* ***D**: 500 seeds, $46.00*
***E**: 1,000 seeds, $85.00*

Violet Sparkle - Organic (75 days) Open-pollinated. As dazzling as the name suggests! Not bell-shaped, but belongs in this sweet category with its crisp colorful compatriots. Short plants produce a profusion of early pointed 4" fruits that start out chartreuse, streak purple, then turn more fully **purple with red streaking**, before ripening solid red. This color medley is at play on the plants, so you can harvest a stunning sparkling assortment. The Fedco fan club loved Sparkle, *ohhing* and *ahhing* at the glittering display on our trial table. ① **NEW!**

3732 ***A**: 0.2g, $2.30* ***B**: 0.4g, $2.80* ***C**: 1g, $4.30*
***D**: 2g, $6.50* ***E**: 4g, $10.00*

Chocolate - Organic (80 days)
Dropped. Go for the Chocolate Cake!



Chocolate Cake - ECO (90 days) Open-pollinated. In these times of gluten, dairy and sugar avoidance, here's a Chocolate Cake everyone can enjoy. In taste tests this **rich reddish brown** 3$\frac{1}{2}$x3$\frac{1}{2}$" blocky thick-walled pepper had great sweetness and flavor. Best of all, if you can't wait for them all to ripen, you'll find that as a green pepper Chocolate Cake is as meaty, sweet, delicious and flavorful as many other types of fully ripe peppers. That breeder Doug Jones continues to select this pepper for earliness, yield and flavor is just icing on the cake. **Breeder Royalties.** ①

3737 ***A**: 0.2g, $2.80*

Corona - Organic (90 days) Open-pollinated. An early maturing green-to-**orange** sweet bell pepper worth the three-month wait to fully ripen, at which point the stunning color is rivaled only by its sweet flavor. The large thick-walled 3$\frac{1}{2}$" blocky fruit with 3–5 lobes is easy to harvest and can attain a weight of up to half a pound. Productive, too! Good foliage cover on 4' plants helps to prevent sunscald. No need to wait until 2024 to see your next corona here in Maine! TMV resistant. ①

3739 ***A**: 0.2g, $3.30*
***B**: 0.4g, $4.60*
***C**: 1g, $8.00*
***D**: 2g, $11.00*
***E**: 4g, $15.00*

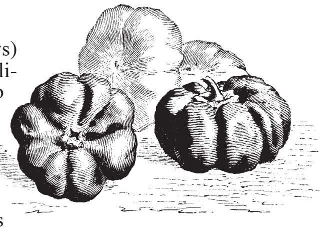
Weight equivalents

1 gram = .035 oz
3 grams = .106 oz
6 grams = .212 oz
24 grams = .851 oz
120 grams = 4.24 oz

$\frac{1}{16}$ oz = 1.77 g
$\frac{1}{8}$ oz = 3.55 g
$\frac{1}{4}$ oz = 7.09 g
$\frac{1}{2}$ oz = 14.2 g
1 oz = 28.4 g
4 oz = 113.5 g
1# = 453.6 g
2.2# = 1000 g

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

CHEESE

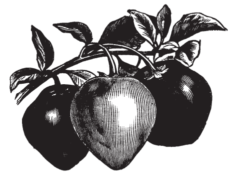


Klari Baby Cheese - Organic (65 days) Open-pollinated. Also known as Golden Delicious Apple Pepper. From Hungary, a Fedco introduction to the U.S. Wini Noyes says it's a good choice "for the pepper-challenged" to grow. Cheese peppers are flattened and filled with a soft sweet mild core. Shaped like 3" Rouge Vif d'Étampes pumpkins, the squat thick-walled 4 oz fruits were unlike anything we'd ever tried. I couldn't stop eating these delicious summertime treats out of hand. Traditionally they are pickled whole after ripening from white to yellow to red. Named after the woman who has maintained this heirloom seed stock. ❧1997. 115-125 seeds/g. ①

3738 ***A***: *0.5g, $2.80* ***B***: *1g, $4.00* ***C***: *2g, $6.50*
D: *4g, $11.00* ***E***: *28g, $49.00*

PIMIENTOS

Sweet Pimiento - Organic (80 days) Open-pollinated. Early and prolific even in bad years, with an enjoyable rich fruity taste. We harvested several of these red pimientos in a difficult season. More skilled growers report 15–20 peppers per plant. Perhaps the provenance of this seed grown in the North Carolina mountains boosts its cold-climate adaptation. ~115-125 seeds/g. ①



3740 ***A***: *0.2g, $3.00*
B: *0.4g, $4.00*
C: *1g, $7.00*
D: *2g, $8.40*
E: *4g, $13.00*

Amish Pimiento - Organic (85 days) Open-pollinated. Pimientos are the sweetest of all peppers—my favorites for eating out of hand. The problem with growing seed for Amish Pimiento is that you have to restrain yourself from eating the seed crop. Blame it on the rich sweet fruity taste of these 2x4" squat ribbed fleshy red fruits, productive and fairly early, thick-walled and crunchy. ①

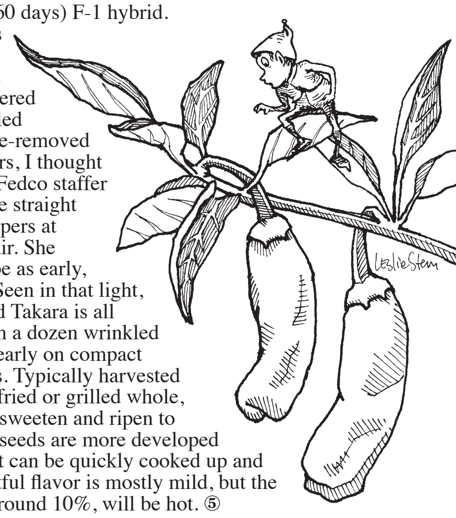
3741 ***A***: *0.2g, $2.60* ***B***: *0.4g, $4.50* ***C***: *1g, $6.60*
D: *2g, $9.00*

Tangerine Pimiento - Organic (85 days) *Not available in 2020. We need a grower!*

ELONGATED PICKLERS, FRYERS & ROASTERS

~110–210 seeds/g.

Takara Shishito (60 days) F-1 hybrid. I was once known as The Pepper Lady, so I have my standards. When I first encountered these small thin-walled second-cousins-twice-removed of Revolution peppers, I thought "Why bother?" But Fedco staffer Emily Skrobis set me straight when we judged peppers at Common Ground Fair. She loves this pepper type as early, easy and abundant. Seen in that light, they make sense, and Takara is all that—with more than a dozen wrinkled 1x3½" fruits borne early on compact well-branched plants. Typically harvested green to be roasted, fried or grilled whole, they will eventually sweeten and ripen to red. And though the seeds are more developed at this stage, the fruit can be quickly cooked up and eaten whole. Delightful flavor is mostly mild, but the occasional pepper, around 10%, will be hot. ⑤

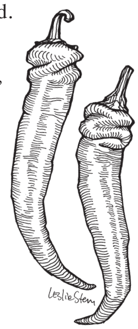


3750 ***A***: *20 seeds, $3.80* ***B***: *60 seeds, $10.00*
C: *200 seeds, $28.00* ***D***: *500 seeds, $64.00*
E: *1,000 seeds, $120.00*

Carmen - Organic (70 days) F-1 hybrid. Johnny's Carmen debuted in 2006 to much critical acclaim, including a coveted AAS. A classic Italian Corno di Toro type, Carmen features unusually sweet horn-shaped tapered pointed 2½x6" fruits averaging 5 oz that won rave reviews from all seven of our tasters. Great for salads, especially as they ripen from green to deep carmine, with good sweet flavor. Walls have only medium thickness, so take care not to get them overly charred when roasting. Upright medium-sized plants with excellent protective canopy. Widely adapted and early maturing in its class. Rob and Janika's Carmen is as tempting as its namesake opera heroine, "fruity," "nutty," "sweet with a hint of spice." ③

3757 ***A***: *20 seeds, $3.80* ***B***: *60 seeds, $10.00*
C: *200 seeds, $24.00* ***D***: *500 seeds, $52.00*
E: *1,000 seeds, $96.00*

Jimmy Nardello's - Organic (76 days) Open-pollinated. This thin-walled 8" frying pepper has won many converts. The long curved tapering pointed fruits turn deep red with shiny wrinkled skin when ripe. Pleasing sweet mild flavor, good raw, in stir-fries and, especially, fried. According to Nardello family relative Patty Ruprecht of Pownal, ME, "the only way to eat them is to string them, dry them, fry them and salt them." Eat them plain or "better still as a sandwich on Italian bread with a slice of provolone." Listed on Slow Food's Ark of Taste. Brought to Connecticut from the village of Ruoti in the Basilicata region of southern Italy in 1887 by Jimmy Nardello's mother. ①



3762 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.00*
C: *1g, $7.00* ***D***: *2g, $10.00*
E: *4g, $18.00* ***K***: *14g, $36.00*

Apple - Organic (80 days) Open-pollinated. Looking more like a lipstick than an apple, these shiny 4" fruits are elongated, with wide shoulders narrowing to a point, and fairly flat, like an ancho. Irresistibly appealing even before the ripe fruity sweetness touches your tongue. When we judge peppers at Common Ground Fair these red beauties always stand out. Delicious fresh and also roasted, they are reliably productive in our cool northern summers and pretty much guaranteed to fully ripen. Dependable and problem free on 2' plants. ②

3764 ***A***: *0.2g, $2.70* ***B***: *0.4g, $4.00* ***C***: *1g, $6.00*
D: *2g, $8.00* ***E***: *4g, $12.00* ***K***: *14g, $33.00*

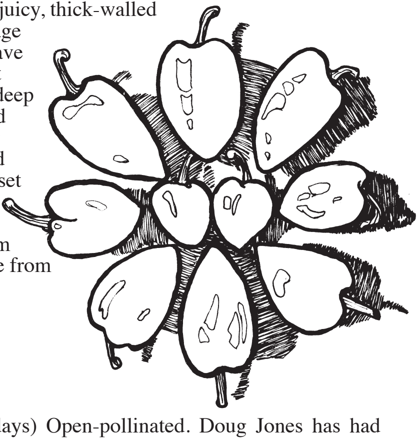
Cubanelle (80 days) Open-pollinated. Years ago our customers asked for this semi-sweet frying pepper and we quickly understood why. 6x2" waxy yellow-green fruits turn red. Not pungent. "Hands down our biggest fruit producer of all pepper varieties for many years now," reports Anne Elder. ②

3766 ***A***: *0.5g, $2.20* ***B***: *1g, $3.00* ***C***: *2g, $4.50*
D: *4g, $6.00* ***E***: *28g, $8.00*

Aconcagua (85 days) Open-pollinated. The highest peak in both the Western and Southern hemispheres, Aconcagua in Argentina stands a lofty 22,841 ft. This ginormous frying pepper is said to originate in Argentina. Elongated cone-shaped 2½x10" fruits tapering to a blunt rounded end can approach a foot in length. Turning from green to yellow to orange to red, the gorgeous fruits are very sweet, crunchy and fruity, ideal for grilling and frying. Delicious at any stage of ripeness. The plants reach almost 3', with such a heavy pendent fruit set that they benefit from staking. May not always ripen fully to red for northern-tier growers, although we have seen many red fruits in the Common Ground Exhibition Hall. ②

3769 ***A***: *0.2g, $2.20* ***B***: *0.4g, $3.20* ***C***: *1g, $4.00*
D: *2g, $6.00* ***E***: *4g, $10.00*

Odessa Market - ECO (87 days) Open-pollinated. Heirloom pepper from Odessa on the Black Sea in Ukraine whose attributes translate wonderfully to Maine's Zone 4. It grows rapidly and dependably sets 7–12 fruits per plant, crisp, juicy, thick-walled and tasty. At the edible green stage the 2¼x4½" tapered peppers have a distinctive wild lime color that morphs to orange and then to a deep dark red. Sweet and full-textured whether enjoyed raw, sautéed or roasted. Strong stocky stems and unique dark green leaves easily set it apart from most others. Broad canopies with good leaf cover reduce sunscald and protect from frost. Fruits are remarkably free from blossom end rot. ①



3772 ***A***: *0.2g, $2.70*
B: *0.4g, $4.00*
C: *1g, $6.00*
D: *2g, $8.00*
E: *4g, $12.00*

Mega Marconi - ECO (90 days) Open-pollinated. Doug Jones has had another breeding breakthrough as he further de-hybridizes Seminis' Giant Marconi into a more compact habit while retaining the heavy early fruit set of 2½x8" tender-skinned Italian-style Lamuyo peppers. Although selected for North Carolina conditions, it produced nearly a dozen fruits per plant in our trials, grown in an open field in central Maine without black plastic. 35% of them ripened red on the plants and those were the sweetest of the strains we tried, with good texture and juiciness. They had good pepper flavor when green and were especially tasty when ripe. **Breeder Royalties.** ①

3736 ***A***: *0.2g, $3.10* ***B***: *0.4g, $5.00* ***C***: *1g, $9.00*
D: *2g, $14.00* ***E***: *4g, $20.00*

Potassium Nitrate (KNO3) Also known as saltpeter, used to soften the coat of many seeds to expedite germination. Recommended for brassicas, eggplant, peppers, tomatoes, basil, endive, radicchio, and most flower seed. Comes in fine granular form. Dilute ½ tsp in 1 qt water. Use as a pre-soak for seed or to water seedling flats. 10g packet contains 2 tsp. *Note: Not allowed for certified-organic use.*

3999 ***A***: *10g, $2.00*

PAPRIKA

Karlo - Organic (70 days) Open-pollinated. This pepper looked so much like Feher Ozon in our trials that we got to wondering if it was also a paprika pepper. Well, it turns out any pepper can make paprika. Hot peppers make hot paprika, sweet peppers make sweet paprika and if you smoke the peppers when you dry them, you get smoked paprika. Karlo is semi-hot and semi-sweet for the perfectly balanced homemade paprika. The thick-walled light yellow to red fruits hold up well in roasting and in the traditional use as a stuffing pepper. The beautifully shiny pointed 3½–5" fruits, at least a dozen per plant, have been reselected since the ’80s for cold tolerance and productivity from the old Garden City Seed variety of the same name. ① **NEW!**

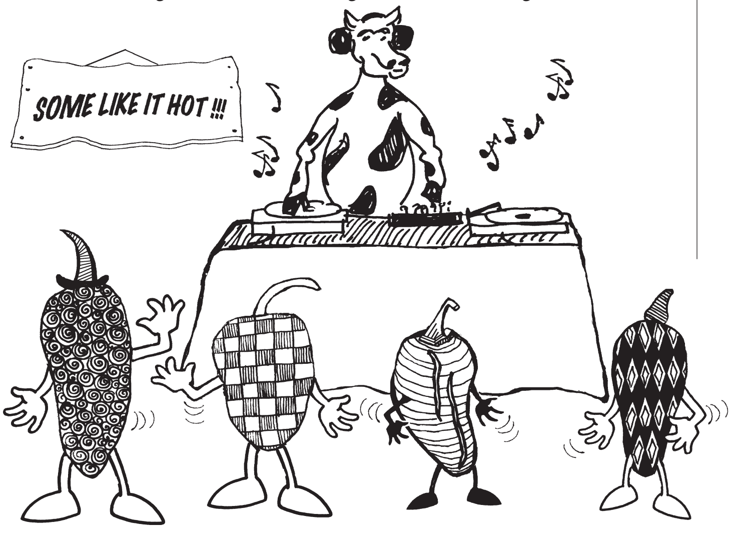
3758 ***A***: *0.2g, $2.70* ***B***: *0.4g, $4.00* ***C***: *1g, $6.00*
D: *2g, $8.00* ***E***: *4g, $12.00*

Boldog Hungarian Spice Paprika - Organic (71 days) Open-pollinated. The Boldog from Hungary that doesn’t bite but does dry nicely with a hint of spiciness. A prolific bearer of 4–6" long wrinkled tapered pendent fruits. Pick red and grind into sweet paprika, string into decorative ristras or enjoy fresh, although skins are a little tough. Boldog sets enough fruit to accommodate all three uses. The town of Boldog is in a well-known spice-pepper district northeast of Budapest. ①

3759 ***A***: *0.2g, $2.40* ***B***: *0.4g, $3.80* ***C***: *1g, $6.00*
D: *2g, $8.00* ***E***: *4g, $14.00* ***K***: *14g, $42.00*

Feher Ozon - Organic (90 days) Open-pollinated Hungarian heirloom. My first introduction to this extraordinary pepper was in a jar…dried and ground to a wonderfully sweet paprika. The field reports didn’t even consider this aspect, instead extolling Feher Ozon for incredible productivity: up to 2 dozen 3x4½" pointed light yellow fruits per plant. One trialer fed her entire neighborhood with these sweet, juicy and flavorful peppers. If you let any ripen to red, they can be dried for a delicious paprika. The beauty of this pepper as it turns is noteworthy. Beginning with the faintest red overtones blending into its yellow background, the red blush grows more pronounced as it matures. ①

3776 ***A***: *0.2g, $2.50* ***B***: *0.4g, $3.30* ***C***: *1g, $6.00*


SOME LIKE IT HOT !!!

HOT PEPPERS

~120–225 seeds/g, except Thai Hot.

Some Like it Hot Mix (64-90 days) Love hot peppers but lack the space to try separate packets of each? Try our blend of at least 5–7 different kinds all in one packet. We’ll mix colors, shapes and flavors.

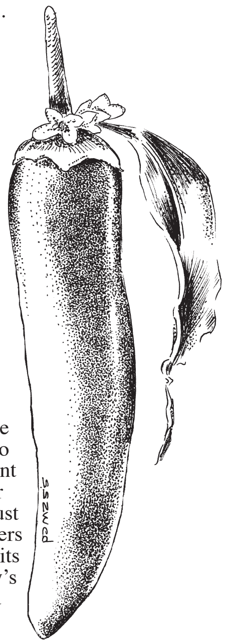
3897 ***A***: *0.2g, $2.40* ***B***: *0.4g, $4.00* ***C***: *1g, $7.00*
D: *2g, $11.00* ***E***: *4g, $18.00*

Hot Portugal - Organic (64 days) Open-pollinated. Bears elongated narrow fruits, 5–8" long, 1" in diameter with the classic wrinkled hip at the stem end. Superb pepper flavor comes through its considerable heat nicely. Not as hot as **3866** Matchbox, but hotter than **3834** Early Jalapeño. Early productive ripener of glossy scarlet fruits borne on tall plants. Most will turn straight from green to red, but 4% off-types will turn from green to yellow to red. Offered by Joseph Harris in 1935. 5,000–30,000 Scoville units. ①

3845 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $20.00*

Czech Black - Organic (65 days) Open-pollinated. Fruits so striking that seed grower Roberta Bailey kept a bowl on her table just to admire. Black when immature, the 2½"-long conical peppers ripen to lustrous garnet. Mild juicy thick-walled flesh runs with cherry-red juice when cut. The heat, a tad less than a jalapeño, is in the ribs and seeds and is “just right for many of us,” says one customer. Jake Kennedy of Liberty, ME, has candied slivered Czech Blacks like citrus peel for a spicy-sweet holiday treat. Bears very early with about 20 pointed fruits per 2½–3' plant. 2,000–5,000 Scovilles. ①

3816 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $11.00* ***E***: *4g, $18.00*



Hungarian Hot Wax (68 days) Open-pollinated. This hot one sets even in cool weather. Smooth waxy yellow 5½x1½" fruits taper to a point and ripen from yellow to orange to red. In fact, last season a Central Maine crop survived a near-fatal spring freeze after transplanting and went on to produce peppers in August. Nikos’ favorite for chiles rellenos. Pickle all three colors for a beautiful hot-pepper medley—a staple for winter sandwiches. Janine Welsby uses them in batches of her famous pepper butter. Originated 1941 in Hungary. 5,000–10,000 Scovilles. ②

3837 ***A***: *0.5g, $1.90* ***B***: *1g, $2.50*
C: *2g, $3.60* ***D***: *4g, $5.00*
E: *28g, $8.00*

Bulgarian Carrot Chile - Organic (68 days) Open-pollinated. Also known as Shipkas. We first saw this show-stopper at Amy LeBlanc’s farm. Resembling little polished fluorescent-orange carrots, the thin-walled 1½–3½" tapered fruits are as hot as they look and make welcome additions to chutneys, marinades and salsas, as well as excellent hot sauces. Also delicious dried and ground. Their fruity undertone nicely complements their heat. Just 18" tall, these prolific plants bear clusters of peppers close to the main stem, an unbelievable 40–55 fruits per plant! Brought indoors, they produced in Amy’s greenhouse till February. Heirloom was smuggled here through the Iron Curtain more than 30 years ago. 5,000–30,000 Scovilles. ③

3853 ***A***: *0.5g, $2.40* ***B***: *1g, $3.50* ***C***: *2g, $6.00*

Ho Chi Minh - Organic (68 days) Open-pollinated. Peppers 4–5" long on 3' plants grow like large fingers turning from bright yellow to crimson in late August. Longtime Minnesota co-oper Steven Schwen sent us seeds for this beautiful shining cayenne pepper that he got in the 1980s when the first wave of boat people landed in Minnesota and came to his farm looking for chickens and ducks. He named it Ho Chi Minh in honor of the Vietnamese revolutionary who defeated all the colonialists who invaded his country. Schwen says it has a bite that makes you “run home to your mama!” We’ve enjoyed its prolific production (up to two dozen fruit per plant), its heat and good flavor. 30,000 Scovilles. ❧2007. ①

3856 ***A***: *0.2g, $2.50* ***B***: *0.4g, $3.50* ***C***: *1g, $6.00*
D: *2g, $9.00* ***E***: *4g, $16.00*

Carrot Bomb - Organic (74 days) Open-pollinated. An explosion of round 1–2" shiny bright tangerine baubles blow up the pepper patch on sturdy 2–2½" plants. The heat is comparable to a mild jalapeño but will vary with weather conditions. A bold spark in salsas, kebabs, stir-fries or the pickle jar. Selected from Bulgarian Carrot by Daniel Brisebois of La Ferme Coopérative Tourne-Sol. Ω ①

3825 ***A***: *0.2g, $2.70* ***B***: *0.4g, $4.20* ***C***: *1g, $6.30*
D: *2g, $8.50* ***E***: *4g, $13.00*

Fireball (75 days) F-1 hybrid. Like the candy of the same name, Fireball turns the inside of your mouth red. Its initial impression of sweetness is swiftly followed by an expression of searing heat. Small strawberry-shaped fruits turn from shiny green to blazing red, mirroring the fire within. Donna Dyrek’s first ripened Sept. 1; additional fruits matured slowly. In mid-October her plants were still covered with peppers. 2,500–5,000 Scovilles. Resists TMV. This lot tested negative both for TMV and BLS. ④

3819 ***A***: *20 seeds, $3.50* ***B***: *60 seeds, $8.00*
C: *200 seeds, $20.00* ***D***: *500 seeds, $45.00*
E: *1,000 seeds, $80.00*

Long Red Narrow Cayenne (75 days) Open-pollinated. Often curled and twisted, the wrinkled peppers grow 5–6" long, ½" across, and taper to a point. Dark green color changes to bright red. Prolific (“produce zillions”) and hot. The backbone of Hillary Nelson’s red chile pastes. Along with **3866** Matchbox dries easily on screens; Holli Cederholm blends them in a food processor for crushed red pepper. Pre-1827 heirloom. Pungent; 3,500–5,000 Scovilles. ②

3821 ***A***: *0.5g, $1.90* ***B***: *1g, $2.20* ***C***: *2g, $3.00*
D: *4g, $4.50* ***E***: *28g, $8.00*

Dulcinea - Organic (75 days) Open-pollinated. For twelve years breeder Roberta Bailey felt like Don Quixote jousting windmills as she tried to stabilize this scarlet-red hot pepper. One year they had no heat, the next they were all the wrong shape; one winter she rescued the seeds from a house fire where they were floating in a bowl of ash and water. But in the end, a sweet reward: Dulcinea, Don Quixote’s fanciful love. The 3' plants bear a dozen or more 3–5" thick-walled peppers with sweet flesh and hot ribs and seeds. Heat and flavor are similar to a jalapeño, but Dulcinea is more of a sweet chili: use the flesh alone for sweetness and flavor but no heat, add ribs for some heat, or add seeds for a real kick. Bred from Chilipeno, a Peter Berkop hybrid. ❧2020 ① **NEW!**

3827 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $20.00*

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

Jaluv An Attitude - Organic (75 days) Open-pollinated. Earth-passionate breeder Relentless blended at least three kinds of peppers into its pedigree, although it looks like a jalapeño in color, shape and size. In the breeder's own words: "If I had to have one chili on a desert island, it used to be a jalapeño. Now maybe not. This new chili is the result of a cross between an open-pollinated jalapeño and (my own) original that was called 45° N Attitude. The object was to have a thicker-skinned 45° with a lot of jalapeño flavor. The 45° N had thin skin, delicious hot fruity flavor, and dried and produced well in northern latitudes. My overriding intent in crossing them was to obtain the best combination of both." Got attitude? 2,500–8,000 Scoville units. **OSSI** ☙2008. **Breeder Royalties.** ①

3831 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.30* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $18.00*

Early Jalapeño (75 days) Open-pollinated. Hot 3x1" sausage-shaped blunt fruits mature early. Characteristic brown netting appears as fruit ripens from dark green to dark red. Packing the seed makes us teary-eyed! From Jalapa in the state of Veracruz, Mexico. 4,000 to 6,500 Scoville units at maturity. ②

3834 ***A***: *0.5g, $1.90* ***B***: *1g, $2.50* ***C***: *2g, $3.60*
D: *4g, $5.00* ***E***: *28g, $8.50*

Hidalgo Serrano - Organic (75 days) Open-pollinated. Slightly hotter than a jalapeño, its "bright fruity hot flavor lingers in the front of the mouth and makes your taste buds tingle all over," said one seed producer. Extremely prolific 3–3 1/2' plants yield dozens of light green fruits that ripen to bright scarlet. The 2 1/2–3 x 1/2" fruits, as fat as your ring finger but only as long as your pinky, have thin walls, a long seed cavity and classic serrano heat. They are perfect for fresh salsa, pickling and hot sauces. 2,000–17,000 Scovilles. ①

3841 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $20.00*

Matchbox - Organic (75 days) Open-pollinated. A product of our inventory manager Roberta Bailey's many years of dedicated breeding work to create an open-pollinated selection of the hybrid Super Chili, whose parents include Hungarian Hot Wax and Hot Banana. The squat plants bear prolific upright fruit, averaging 2" long, 1/3" across and ripening from pale green to deep scarlet. They bear well in cold damp weather, hot dry weather, sandy soils and heavy clay. They have plenty of heat and the characteristic finely cut lightweight leaves of many hot peppers. Can be potted and overwintered or brought inside to make a beautiful pepper wreath when frost threatens. 30,000-50,000 Scoville units. **OSSI** ☙2000. Ω ①

3866 ***A***: *0.2g, $2.80* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $18.00*

Anaheim (78 days) Open-pollinated. Also known as California Chile and Chile Verde. Cultivated for canning in a factory near Anaheim around 1900. Anaheim is the pepper typically used for chiles rellenos. 7" long fruits tapering to a point turn from dark green to red at maturity. Pungent, but not particularly hot. 900–2,500 Scovilles. ②

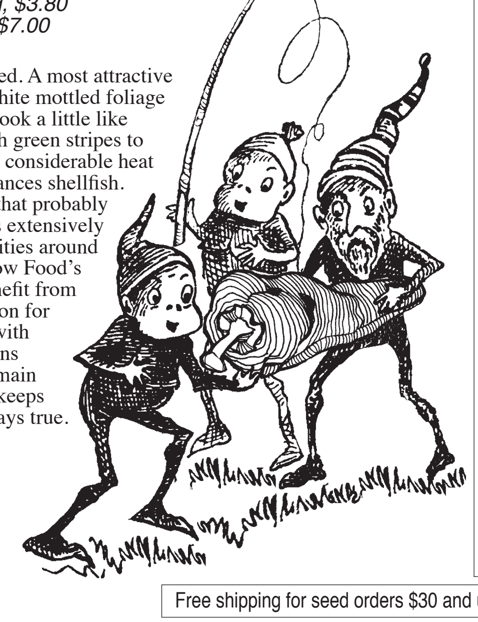
3807 ***A***: *0.5g, $1.90* ***B***: *1g, $2.40* ***C***: *2g, $3.60*
D: *4g, $5.00* ***E***: *28g, $8.00*

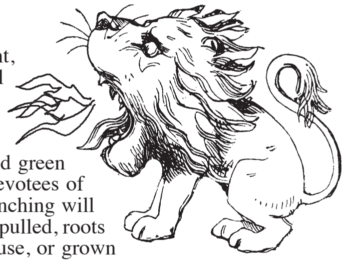
Beaver Dam - Organic (80 days) Open-pollinated. Early for its size and a heavy producer in normal years, sets several pendulous shiny horn-shaped 6" red-orange fruits per plant, 3" wide at the shoulders, tapering to a blunt point. Both sweet and with heat. Most of its mild spice is in its ribs so you can excise those if you wish. Karen Orso writes from California in the Eastern Sierra–Great Basin region, "Beaver Dam Pepper worked wonderfully for us this summer in our garden's 5,000' elevation in sandy loam with 5% humidity." Heirloom brought to Beaver Dam, WI, in 1912 by the Joe Hussli family. 500–1,000 Scovilles. ①

3805 ***A***: *0.2g, $2.50* ***B***: *0.4g, $3.80*
C: *1g, $6.00* ***D***: *2g, $7.00*
E: *4g, $12.00*

Fish - Organic (80 days) Open-pollinated. A most attractive pepper plant with distinctive green and white mottled foliage and fruits. The 2" curving pendent fruits look a little like swimming fish. They turn from white with green stripes to orange with brown stripes to red, packing considerable heat and full-bodied flavor that especially enhances shellfish. A mutation of a common serrano pepper that probably originated in the 1870s, by 1900 Fish was extensively grown by the African-American communities around Philadelphia and Baltimore. Listed on Slow Food's Ark of Taste. 2' spreading bush plants benefit from staking. May require a little too long season for the coldest pockets. Fish crosses readily with other peppers, requiring greater populations and more isolation than most others to remain pure. Roberta Bailey, our pepper maven, keeps selecting our stock to ensure this strain stays true. 5,000–30,000 Scovilles. ①

3849 ***A***: *0.2g, $2.80*
B: *0.4g, $4.50*
C: *1g, $8.00*
D: *2g, $12.00*
E: *4g, $20.00*





Thai Hot - Organic (82 days) Open-pollinated. Anne Elder gets 200 of these little "sweeties" per plant, "cute little compact treasures full of heat." Its small conical peppers ripen to bright red and stand erect above the foliage so fetchingly that it's grown "in the trade" as a red and green Christmas potted plant. However, devotees of hot cuisine prize its sparks. Early pinching will produce a bushy 8" plant that can be pulled, roots and all, and hung to dry for winter use, or grown inside for ornamental and edible enjoyment. Checks in around 25,000-40,000 Scoville units. ~400 seeds/g. ①

3860 ***A***: *0.2g, $2.60* ***B***: *0.4g, $4.20* ***C***: *1g, $5.50*
D: *2g, $8.00* ***E***: *4g, $15.00*

Caballero Ancho/Poblano (65 days green, 84 days red ripe) F-1 hybrid. This Caballero gallantly galloped up to replace Tiburon. These relatively mild hot peppers have a perfect balance of heat and sweet rich flavor in their thick flesh and ribs. Known as Poblanos when green and Anchos when dried, they are used for roasting, stuffing, making chili powder and sauces, especially the classic mole. Large uniform glossy very dark green 3-lobed elongated fruit (3 1/2–5" long x 3" wide) with a recessed stem will mature to a deep brick red. Extremely productive in northern climates, the 3 1/2' tall plants set 12–20 fruits per plant. Staking may be necessary. Approx. 1,800 Scoville units. ⑤

3811 ***A***: *20 seeds, $3.20* ***B***: *60 seeds, $7.00*
C: *200 seeds, $20.00* ***D***: *500 seeds, $40.00*
E: *1,000 seeds, $72.00*

Hinkelhatz - Organic (88 days) Open-pollinated. Not for the chicken-hearted, this rare Pennsylvania Dutch heirloom packs considerable heat. Its name aptly describes the size and shape of its 3/4 x1 1/2" pendent peppers that taper to a blunt point and are covered with tiny bumps and wrinkles. Ripening from green to red, the tough skins when cut open emit a fruity redolence and reveal a thick juicy flesh. Rarely eaten raw, the peppers were traditionally used for pickling and pepper vinegar. Nearly as hot as habaneros, they do not require quite as long a season, nor are they as picky in cool environments. Plus they are compact enough to grow in a pot to bring inside for the winter. Hinkelhatz has boarded the Slow Food's Ark of Taste. Thank you, Amy LeBlanc, for bringing it to our attention. 125,000 Scovilles. ①

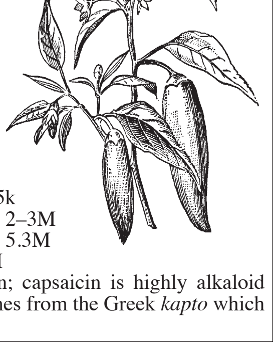
3870 ***A***: *0.2g, $2.70* ***B***: *0.4g, $4.50* ***C***: *1g, $8.00*
D: *2g, $12.00* ***E***: *4g, $18.00*

Orange Habanero (90 days) *C. chinense* Open-pollinated. A Scotch Bonnet–type infamous for its extreme heat, fiery Habanero registers a blistering 200,000–325,000 Scoville units, depending on how hot the growing season, 30–80 times as hot as Early Jalapeño! Each 1 1/2' plant will set 10–20 pendulous fruits that turn from dark green to tangerine as they mature. Fruits are somewhat wrinkled from stem to tip. Their distinctive flavor makes them a key ingredient in West Indian jerk sauce. We recommend greenhouse culture for the northern third of our sales area where frequent nighttime temperatures below 70° make outdoor production iffy. ②

3874 ***A***: *0.5g, $2.00* ***B***: *1g, $3.00* ***C***: *2g, $4.80*
D: *4g, $7.00* ***E***: *28g, $24.00*

Hotness of peppers is expressed in Scoville units, named after Wilbur Scoville, the Englishman who in 1912 devised this system of measuring capsaicin (which causes most of the heat in peppers) in which a pepper extract is diluted in sugar water until the spiciness is no longer detectable to a panel of five tasters. The test is useful, but imprecise, as specimens of a pepper variety will vary greatly depending on growing conditions. Warm nighttime temperatures stimulate maximum development of capsaicins and increase pungency levels.

Bell, Pimiento	0
Beaver Dam	<1k
Ancho, Poblano	1–2k
Anaheim	~1–2.5k
Fireball	2.5–5k
Jaluv an Attitude	2.5–5k
Serrano	2–17k
LRN Cayenne	3.5–5k
Early Jalapeño	4–6k
Hungarian Hot Wax	5–10k
Hot Portugal	5–30k
Fish	5–30k
Bulgarian Carrot	5–30k
Thai Hot	25–40k
Ho Chi Minh	30k
Matchbox	30–50k
Hinkelhatz	125k
Habanero	200–325k
self-defense pepper spray	2–3M
police-grade pepper spray	5.3M
straight capsaicin	15–16M



Handle hot peppers with caution; capsaicin is highly alkaloid and can burn skin. Capsicum comes from the Greek *kapto* which means 'bite.'

RADISH

Raphanus raphanistrum subs. *sativus*

All **open-pollinated**, except **2243** Cheriette, **2277** Mini Purple & **2285** Saitaro.

Culture: Summer radishes may be sown almost as soon as the ground can be worked. They emerge rapidly and grow quickly. Sow 1–2" apart, and thin to at least 2" for attractive uniform roots. Use row cover to protect from flea beetles. They develop more pungency in dry heat than in cool moist weather. Ready for harvest at about the size of a quarter and will rapidly get woody if allowed to grow much larger.

Minimum germination temperature 40˚, optimal range 55–85˚.

Disease: FY Fusarium Yellows

Note: We cannot ship larger than half oz. packets of radishes to the Willamette Valley due to quarantine.

Days to maturity are from date of seeding.

RED ROUND RADISHES

~2400-3200 seeds/oz.

Gloriette (24 days) F-1 hybrid. *Available on our website*.

Cherry Belle (25 days) Good smooth red-skinned bunching radish making 3/4" balls with firm white flesh. Some variation in our observation plots. 1949 AAS. ④

2214 ***A***: *1/8oz, $2.00* ***B***: *1/2oz, $3.00* ***C***: *1oz, $4.00*
D: *4oz, $6.00* ***E***: *1#, $14.00* ***K***: *5#, $58.00*

Champion (25 days) Smooth scarlet roots with firm mild flesh grow quickly to edible size. Crunchy and juicy. Some variation in our trials, but one customer said “best radish I’ve grown in 40 years.” Do not crowd. Thin, thin, thin! 1957 AAS. ②

2234 ***A***: *1/8oz, $1.70* ***B***: *1/2oz, $2.50* ***C***: *1oz, $3.60*
D: *4oz, $6.00* ***E***: *1#, $14.00* ***K***: *5#, $65.00*

Cheriette (26 days) F-1 hybrid. Vibrant scarlet skins with crisp sweet white flesh. Sizing up more slowly than Gloriette, they showed the best field-holding quality in the trial and had the sweetest flavor with a mild tang. All 10 round slightly oval specimens in the sample were acceptable, 9 of them sufficiently uniform to be marketable. A higher yielder and stands heat better than any of our OP selections. Short tops. ⑤

2243 ***A***: *1/8oz, $2.80* ***B***: *1/2oz, $5.60* ***C***: *1oz, $8.40*
D: *4oz, $26.00* ***E***: *1#, $92.00*

> You are one of the BEST companies ever! Social conscience, environmentally friendly, good neighbor, forward thinking, while still having a sense of humor. A pleased customer since the early 1980s.
> Your fan, Lynnett Combs, Montpelier, VT

RADISHES of Other Colors

~2400-3200 seeds/oz.

Easter Egg (25 days) These good-sized delicious radishes do not become woody, hollow or too hot. Nor do they bolt easily. Kids and adults love this fascinating blend with shades of **pink, purple, red, violet and white**. Always our most popular radish among home gardeners and favored by market growers for bunching. ⑤

2224 ***A***: *1/8oz, $2.20* ***B***: *1/2oz, $3.60* ***C***: *1oz, $5.00*
D: *4oz, $9.00* ***E***: *1#, $27.00*

Pink Lady Slipper (25 days) Named for the large showy wildflower that is listed as “of concern” in the Native Plant Protection Act, this is one Lady Slipper you can uproot with abandon. Pink Lady Slipper has the beauty of a **soft rosy-pink** color combined with bright white flesh that is crisp and mild. The oblong plump roots, blunt at the tip and with a small taproot, hold longer than others without cracking or getting soft and pithy. Stays crisp for weeks after harvest. ②

2230 ***A***: *1/8oz, $2.10* ***B***: *1/2oz, $3.60* ***C***: *1oz, $4.50*
D: *4oz, $9.00* ***E***: *1#, $24.00*

Hailstone (25 days) The only hailstone we want to see on the farm. Vaughan, in 1904, called it “the quickest growing radish on record,” and described it as round, smooth, **snowy-white** with a short tender taproot. Produces crisp juicy roots 1" in diameter that hold well and have some heat. Unusually small foliage but intolerant to crowding. ④

2240 ***A***: *1/8oz, $2.10* ***B***: *1/2oz, $4.00*
C: *1oz, $6.00* ***D***: *4oz, $12.00*
E: *1#, $32.00*

Pearl - Organic (25 days) Uniform flawless **snow-white** 1–1 1/2" round radishes have tender skin and mild sweet melting interior that distinguish them from your standard radish. Vigor and strong tops make Pearl an easy choice for garden and bunched market. The hot dry spring and early summer of 2018 demonstrated its excellent crack resistance. Through continual care and selection, OP varieties such as this Pearl truly are edible treasures. ④

2245 ***A***: *250 seeds, $3.60*
B: *500 seeds, $5.00*
C: *2,000 seeds, $12.00*

French Breakfast (26 days) Favored in Paris markets since before 1879, and our best-selling radish in the larger sizes. “A medium-sized radish, elongated, with small tops of quick growth, very crisp and tender, of a beautiful scarlet color, except near the tip, which is pure white. A splendid variety for the table, on account of its excellent quality and its beautiful color.”—From D.M. Ferry & Co’s Descriptive Catalog, 1902. Gets pithy earlier than many others. ⑤

2248 ***A***: *1/8oz, $2.00*
B: *1/2oz, $2.80*
C: *1oz, $4.00*
D: *4oz, $8.20*
E: *1#, $22.00*
K: *5#, $96.00*

Plum Purple - Organic (26 days) This popular plum-colored round radish, almost the size of a ping-pong ball, has recently been reselected for more uniformity. Crisp white flesh has a good sweet taste with only a little heat. One customer who grows radishes under row covers to avoid root-maggot damage calls Plum Purple the radish most tolerant to slightly shaded row-cover conditions. *Check our website*: larger packets may become available. ①

2253 ***A***: *1/8oz, $2.40* ***B***: *1/2oz, $6.30* ***C***: *1oz, $9.30*
D: *4oz, $28.00*

Zlata (30 days) A new color in summer radishes; these shimmery **yellowish-tan russeted** medium-sized beauties from Poland starred in our trial. Crunchy and crispy white interiors, spicy but not overwhelming, good fresh and even better braised. Its light-textured leaves make good young greens. Did not bolt or split and held quality even throughout June rains. Perfect for bunching. ②

2257 ***A***: *1/16oz, $3.00* ***B***: *1/8oz, $5.00* ***C***: *1/2oz, $12.00*
D: *1oz, $18.00* ***E***: *4oz, $56.00*

White Icicle (30 days) Also known as Lady Finger, an heirloom listed by Fearing Burr as White Naples, White Italian and White Transparent. Firm tender all-white roots for the home garden will grow down 4–6" in all but the heaviest soils. Also used for bunching by commercial growers. Mild if harvested when young and slender, and remains in good eating condition longer than most other summer radishes. Juicy and somewhat spicy. ④

2262 ***A***: *1/8oz, $2.20* ***B***: *1/2oz, $3.30* ***C***: *1oz, $4.00*
D: *4oz, $8.00* ***E***: *1#, $18.00* ***K***: *5#, $70.00*

WINTER RADISHES

~2100-2900 seeds/oz.

Culture: Slower-growing than the quick summer kind, with many growing deeper roots than summer radishes, often cylindrical in shape. Thin to 6" apart. They hold much longer than summer radishes but if they start to bolt, pinch off the tops. Ideal in September and October from an early July planting, and can be stored for winter.

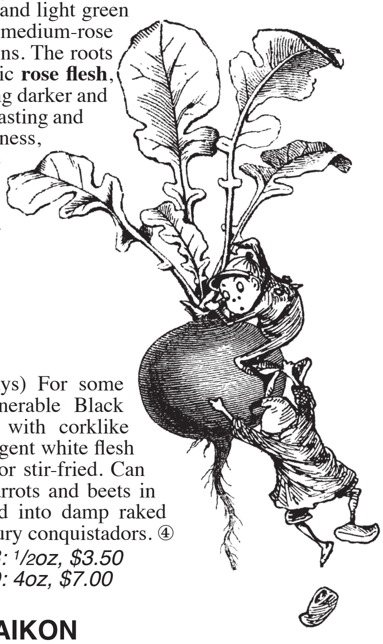
Watermelon (55 days) A welcome addition to any winter vegetable collection, these radishes will please with their consistent sweet tender flesh and brilliant color display. Like its namesake, Watermelon reveals its sweet smooth **bright rose flesh** once you slice through the green and white skin. Growing to a robust 2½" diameter in just 45 days, these precocious winter keepers are best suited for a mid-late July sowing. At full maturity, the attractive 4" long oblong roots will store for months in the root cellar and keep their vibrant colors even when cooked. Selected from among 6 strains for their uniform coloring and daikon leaves. A real treat sliced, topped with farm butter and a pinch of sea salt. "Fast and delicious" sums CT market grower Bryan O'Hara. Our interview with Bryan appears on pg 113. ③

***2265 A**: 1/8oz, $2.10 **B**: 1/2oz, $4.00 **C**: 1oz, $5.60*
***D**: 4oz, $12.00 **E**: 1#, $42.00*

Munchener Bier (55 days) *We need a supplier. Not available in 2020.*

Misato Rose - Organic (60 days) Also known as Chinese Red Heart radish, described in its native land as *xin li mei*, meaning 'in one's heart beautiful.' A unique selection from a hybrid, with two variations so about half have light greenish-tan outer skins and light green stems and leaf veins, the remainder medium-rose outer skins, rose stems and leaf veins. The roots of both types have the characteristic **rose flesh**, the ones with the darker skins having darker and more pungent hearts. Both are fine tasting and good looking, with plenty of spiciness, a rich sweet vegetable undertone and no harsh sharpness. Will grow as large as a big beet if given sufficient space. For autumn crops, a good keeper. ①

***2269 A**: 1/8oz, $2.60*
***B**: 1/2oz, $7.00*
***C**: 1oz, $10.00*
***D**: 4oz, $30.00*
***E**: 1#, $102.00*



Round Black Spanish (65 days) For some real heat, try a slice of the venerable Black Spanish. Turnip-shaped 4" roots with corklike black exteriors have extremely pungent white flesh that loses some heat when boiled or stir-fried. Can be stored in the root cellar like carrots and beets in slightly moistened sand or layered into damp raked leaves. Dates back to the 16th-century conquistadors. ④

***2270 A**: 1/8oz, $1.80 **B**: 1/2oz, $3.50*
***C**: 1oz, $5.00 **D**: 4oz, $7.00*
***E**: 1#, $17.00*

DAIKON

~2900-3000 seeds/oz.

Daikon means 'big root' in Japanese. See also Rat-tail Radish Pods in the Asian Greens section, p. 34.

Mini Purple (50 days) F-1 hybrid. Wide plumb-bob–shaped 5" by 2½" roots with gorgeous bluish-purple skin and greenish-purple shoulders are "mini" only when compared to long white types. Topped by vibrant dark green leaves with short stems blushed purple-pink. Interior flesh is ringed **deep purple** with streaks through white meat merging into a purple sunburst core. All sizes, from 3" up to the 9" bombs, have excellent crunchy tender raw texture and mildly spicy flavor. When cooked, Mini becomes firm, sweet and savory with tangy hints of rutabaga. Note: expect 10% green-shouldered white off-type roots of same flavor and texture. ⑤

***2277 A**: 1/16oz, $3.70 **B**: 1/8oz, $6.60 **C**: 1/2oz, $18.00*
***D**: 1oz, $29.00*

Green Meat - Organic (55 days) Unique miniature daikon radish with striking **lime-green flesh** grows 6–9" long and 1–3" wide. The above-ground exposed shoulders turn a deep green while the tips remain white. Fine-grained, crisp and sweet. Carter says it has a "distinct green-apple flavor." Used in Asia for salads, cooking and pickling. David Nonnenmacher suggests trying a slice on homemade bread slathered with butter. Green Meat and **2269** Misato Rose keep in his root cellar until May. ①

***2268 A**: 1/8oz, $2.80 **B**: 1/2oz, $7.00 **C**: 1oz, $10.00*
***D**: 4oz, $32.00 **E**: 1#, $120.00*

Saitaro (69 days) F-1 hybrid. Thick uniform 9–12" root tapers to a blunt point. Its rise will be steady and slow bolting, vigorous tops shading the nice-looking white roots with light green tinted shoulders. With very smooth silky texture cooked and a nicely spiced crunch when raw, this one is sure to have you saying *oishii desu ne* ("ohee-SHE-des-nay"). Resists FY. ⑤

***2285 A**: 1/16oz, $3.70 **B**: 1/8oz, $6.60 **C**: 1/2oz, $17.00*
***D**: 1oz, $31.00*

RANDOM ROOTS

~ All open-pollinated.

BURDOCK *Arctium lappa*

Takinogawa (120 days) Treasured by the Japanese, who call its long fleshy aromatic taproot *gobo*. The standard Japanese variety, setting 1–2' mild earthy-tasting bittersweet roots. Small roots are grated in salads; larger roots are good in stir-fries, soups and wild ferments. Culture like carrots, working the soil deeply, direct-sowing in spring and thinning to 3–6". Harvest in fall or early next spring. Burdock has a long history as a medicinal. Herbalist Deb Soule says burdock root, whether eaten or used in a tea or tincture, nourishes the liver and kidneys, balances digestion, helps the skin, and is useful in anti-cancer remedies. Think about that the next time you run into burdock as a common weed dispensing its burrs. ~1,650 seeds/oz. ⑤

***2300 A**: 1/8oz, $3.50 **B**: 1/2oz, $10.00 **C**: 1oz, $14.00*
***D**: 4oz, $48.00*

ROOT PARSLEY *Petroselinum crispum*

Arat (88 days) Enhance your soups and specialty dishes with these nutty-flavored roots redolent of a parsley-celery combination. Sweeter and more uniform than Hamburg, these roots are whoppers: they fill out well and grow almost a foot, benefiting from a deeply worked seed bed. You can sustain a harvest through much of the winter and possibly into spring if you protect them. Young flat parsley leaves also add zest. ~25,000 seeds/oz. ④

***2301 A**: 1/16oz, $3.40 **B**: 1/8oz, $5.40 **C**: 1/2oz, $17.00*
***D**: 1oz, $27.00 **E**: 4oz, $95.00*

SALSIFY *Tragopogon porrifolius*

Gammel Gotlandsk (120 days) Biennial. *Not available in 2020*. We are looking for a grower.

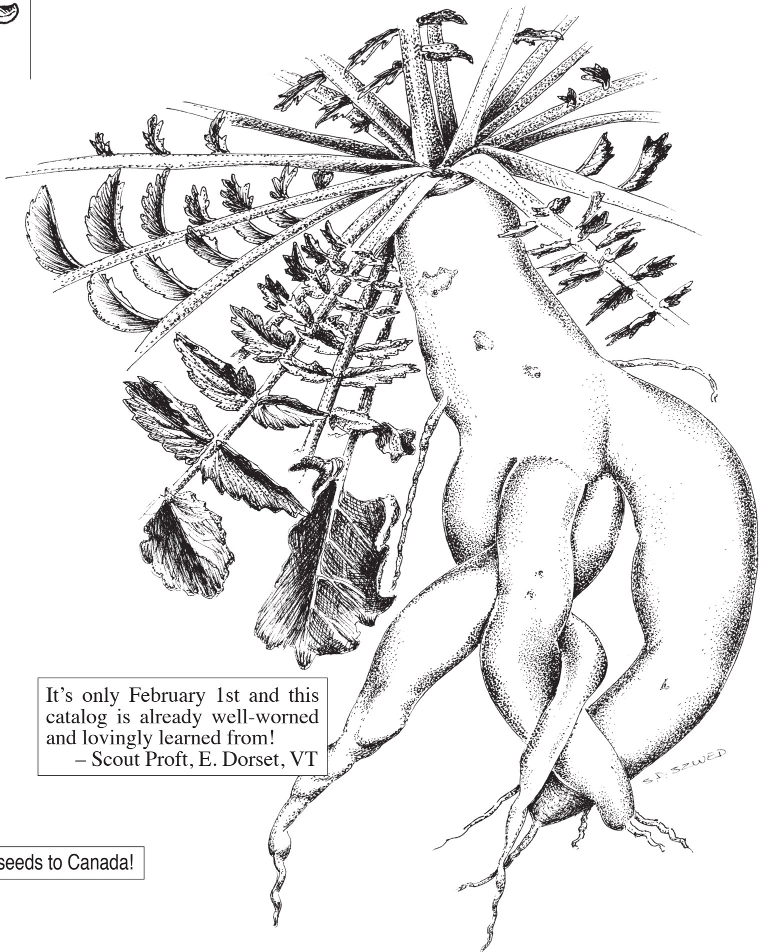
SCORZONERA *S. hispanica*

Noir de Russie (120 days) Biennial. Scorzonera derives from the Spanish *corteza negra* or 'black bark.' Long narrow dark-skinned white-fleshed root is a good source of iron, phosphorus and calcium. Although not handsome, it is prized by chefs in Europe for its distinctive flavor, and used like potatoes in haute cuisine. Much of the flavor resides in the dark skin so do not peel before cooking. Has a firm smooth texture, not sweet like many root vegetables. Culture like parsnips, overwintering in the field and pulling as needed. Flavor improves after a hard frost. Has only limited storage in root cellars, nor does it can or freeze well, so use right after harvest. Seed is short-lived; germ test old seed in paper towels before sowing. ~2,150 seeds/oz. ②

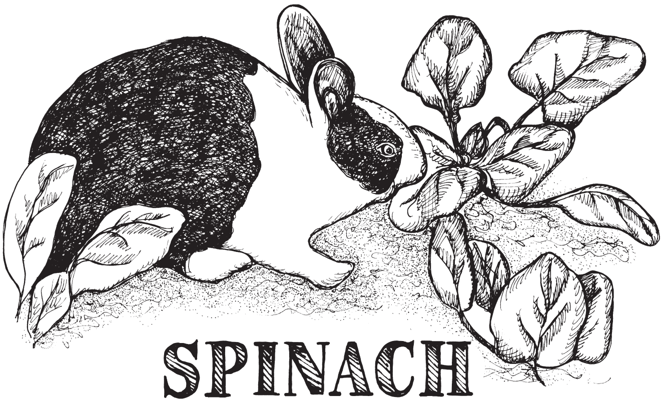
***2322 A**: 1/8oz, $2.20 **B**: 1/2oz, $4.50 **C**: 1oz, $7.50*
***D**: 4oz, $24.00 **E**: 1#, $80.00*

SKIRRET *Sium sisarum*

Skirret (120 days) Perennial. *No crop for 2020*. We are looking for a grower.



> It's only February 1st and this catalog is already well-worned and lovingly learned from!
> – Scout Proft, E. Dorset, VT



SPINACH

Spinacia oleracea

~1500–2800 seeds/oz.

Culture: Very hardy, spinach prefers cool temps. Spinach should be planted as soon as the ground can be worked in spring to avoid early bolting. For fall crop, try late July–Aug. sowing; to overwinter, sow late Aug.–Sept. Heavy feeder, but note that applying high-nitrogen fertilizers to spinach shortly before harvest can cause high nitrate levels in the leaves. Pick large leaves often for heavier production. Smooth-leaved spinach is easier to wash than the semi-savoyed type and is increasingly preferred. Heat, crowding and long day-length (more than 14 hours) trigger bolting. To retard bolting, avoid hot-weather planting, use wider spacing, and irrigate or use shade cloth.

The use of hardy varieties, cold frames, row covers and hoophouses has made spinach into a nearly year-round crop. Growers should rely on **2510** Space or **2539** Oceanside for winter production.

Minimum germination temperature 35˚; optimal range 45–65˚. Spinach seed will not germinate in soil temperatures above 85˚.

Diseases:

BM	Blue Mold	CLS	Cladosporium Leaf Spot
CMV	Cucumber Mosaic Virus	DM	Downy Mildew

Downy Mildew (DM) is caused in spinach by *Peronospora farinosa* f. sp. *spinaciae*. This pathogen evolves new races at a fast clip, challenging breeders and growers worldwide to keep up. Resistant varieties are the main management tool. While formerly considered Somebody Else's Problem, spinach DM has popped up here and there in the Northeast on a seemingly random cross section of spinach varieties. Most cases have been in protected winter crops. Researchers such as Dr. Meg McGrath of Cornell, along with regional seed companies, are tracking these occurrences with hopes of more knowledge before it becomes a major problem. Stay tuned! Until then, good info and visual spinach-disease primers can be found at:

mtvernon.wsu.edu/path_team/spinach.htm
vegetablemdonline.ppath.cornell.edu/NewsArticles/SpinachDownyMildew.html

Days to maturity are from date of seeding.

Beaujolais - Organic (30 days) Open-pollinated. More than a decade ago we carried the variety Bordeaux, but we put that niche spinach on the chopping block when Syngenta bought out supplier Daehnfeldt. We're happy now to list Beaujolais, a very similar wine-themed organic varietal developed by our friends at Uprising Seeds on their farm in eastern Washington wine country. Be forewarned: this spinach bolts quickly so is best grown in the cooler ends of the season. Prized as a baby green for its striking magenta-red stems and veins in deep green arrowhead leaves. Has the characteristic shine of young beet greens, but Beaujolais tastes milder and sweeter in a salad mix. Nikos found the leaves from bolted plants still quite delicious. To borrow the words of Jonathan Swift, this beaujolais should be eaten, it is too good to be drunk. **OSSI ❆ ① NEW!**

***2500 A**: 1/4oz, $4.90*

Space (37 days) F-1 hybrid. We regularly sell more than 3,500 packets per year! Produces the kind of vigorous big thick wavy mostly smooth slightly savoyed leaves that market growers love and restaurant chefs adore. Relatively long-standing when sown in early spring. Vigorous at all times, it was the quickest to mature from a fall planting. Upright growth results in good clean dark green leaves with a juicy sweet taste. We've heard rumors of Space's intended demise so don't Space out: stock up! Resistant to DM1,2,3,5,6,8,11,12 and some resistance to CLS. ❆ ④

***2510 A**: 1/4oz, $2.40 **B**: 1/2oz, $3.60 **C**: 1oz, $5.80*
***D**: 4oz, $11.60 **E**: 1#, $30.00 **K**: 5#, $135.00*

Olympia (38 days) F-1 hybrid. An outstanding performer for the fall crop and early winter, Olympia grows fast, producing enormous yields of mostly smooth leaves up to 5x6". Almost entirely lacking in oxalic-acid taste, the mild flavor is paired with lush texture. But Olympia can't stand the heat and bolts quickly when planted in spring. Resistant to DM1,2,3,5,8,9,11,12,14, possibly 16. ❆ ⑤

***2512 A**: 1/4oz, $2.10 **B**: 1/2oz, $3.30 **C**: 1oz, $5.60*
***D**: 4oz, $10.00 **E**: 1#, $24.00 **K**: 5#, $110.00*

Avon (20 to baby leaf, 42 days mature) F-1 hybrid. Cosmetic allure alone could not succor us in the loss of star performer Tyee. Luckily, Avon came calling. This vigorous semi-savoy matures large broad dark green leaves with mild sprightly sweet flavor. Tender leaf and stem pair well with an upright spreading habit for easy baby-stage cuttings. Avon holds well in June heat and keeps its pleasing texture and good looks as the days get shorter and cooler. "Love this spinach—it really IS a good substitute for Tyee, which is what we always grew for pack sales," reported Lisa and Howard Prussack of High Meadows Farm in Putney, VT. "Vigorous and holds up well if not overheated or under-watered." We found Avon's DM resistance is not adapted to overwintered protected culture. Resistant to DM1,2 and CMV. ⑤

***2538 A**: 1/4oz, $2.30 **B**: 1/2oz, $3.30 **C**: 1oz, $5.60*
***D**: 4oz, $11.00 **E**: 1#, $31.00 **K**: 5#, $140.00*

Oceanside (25–30 to baby leaf, 45 days mature) F-1 hybrid. Like the amazing smooth surfing waves in Oceanside, CA, the leaves of this spinach just keep on coming. Thick but tender, very dark green smooth round oval leaves are upright, perfect for the baby cut. At full maturity, large broad leaves still give excellent silky texture and mild sweet flavor. With our erratic Maine summers, we prize bolt tolerance above all else, and Oceanside delivered in style, even beyond what legendary Tyee could muster. Oceanside holds leaf quality, strong color and great taste for more than a month, barely showing signs of going by in early August. The winter crop in Anne Hallee's 2018 hoophouse trial was stunning. A little slower to size up in deep cold than Space, but Oceanside's consistent performance might be the answer to hardiness and disease concerns growers are struggling with. High resistance to DM races 1-9,11,13,15,16,17 & isolate UA201621A. Intermediate resistance to DM races 12,14. ❆ ⑤

***2539 A**: 1/4oz, $2.50 **B**: 1/2oz, $3.90 **C**: 1oz, $5.80*
***D**: 4oz, $14.00 **E**: 1#, $40.00*

Bloomsdale (42 days) Open-pollinated. This classic savoy-leaf spinach pleases with its excellent rich flavor and fully crinkled crumpled form. Much better in fall than in spring when it bolts in the heat. Recent hybrids surpass it in production and bolt resistance. David Landreth, founder of the Landreth Seed Company, developed the original Bloomsdale Spinach, forerunner of this type. ❆

Bloomsdale ②

***2540 A**: 1/4oz, $1.90 **B**: 1/2oz, $2.70 **C**: 1oz, $3.60*
***D**: 4oz, $6.80 **E**: 1#, $12.50 **K**: 5#, $58.00*

Bloomsdale - Organic ③

***2541 A**: 1/4oz, $2.50 **B**: 1/2oz, $4.00 **C**: 1oz, $6.30*
***D**: 4oz, $16.00 **E**: 1#, $42.00 **K**: 5#, $198.00*

Giant Winter (45 days) Open-pollinated. Selected for its cold hardiness, Giant brings bountiful harvests late fall to early winter in high tunnels. The large medium-green semi-savoyed leaves overwinter well under mulch. Great flavor and melting texture. Bear in mind midwinter tunnel regrowth for multiple cuttings is slow, and DM resistance is nil. ❆ ②

***2555 A**: 1/4oz, $2.50 **B**: 1/2oz, $3.60 **C**: 1oz, $4.20*
***D**: 4oz, $8.60 **E**: 1#, $26.00*

Winter Bloomsdale - Organic (47 days) Open-pollinated. This superior strain is much slower to bolt in June than standard Bloomsdale, and the dark green savoyed leaves can handle winter in northern hoophouses. Good for single cuttings in cold conditions, with slower regrowth than hardy hybrids. Slower growing and more spreading in habit than standard Bloomsdale, but the full flavor and tenderness has not been sacrificed. Definitely worth a try overwintering under mulch in the stark snowy outdoors. Resistant to CMV and BM, but not to DM. ❆ ①

***2558 A**: 1/4oz, $2.60 **B**: 1/2oz, $4.20 **C**: 1oz, $8.00*
***D**: 4oz, $20.00 **E**: 1#, $66.00 **K**: 5#, $298.00*

Spinach Substitutes: see pg 31.

SUMMER SQUASH & ZUCCHINI

Cucurbita pepo

~200–320 seeds/oz for yellow, patty pan and Lebanese summer squashes;
1/2 oz packet sows 5–8 hills; 1 oz, 40–60 hills.
~160–240 seeds/oz for zucchini.

Culture: Tender, will not survive frost. Sow in hills 4' apart, 5 seeds/hill. Thin to 2–3 best plants. Floating row covers, especially when used in low tunnels, provide extra heat and can hasten maturity by 1—2 weeks. Don't leave oversized squash on the vine; it shuts down production. Make succession plantings to ensure harvest through the entire frost-free season, insurance against powdery mildew and other diseases of tiring old plants. For best flavor pick summer squash when they are small.

Squash blossoms are a delicacy. Harvest male blossoms when fully open for salads or stuffing. Male blossoms typically precede females by about a week. Females have a bulge at the base of the blossom, an early stage of the fruit forming.

In early summer, a combination of cool, cloudy weather and declining bee populations may result in poor pollination causing low yields. Mites and colony collapse disorder have wiped out a high percentage of wild and domesticated honeybee colonies in the last 20 years, creating a real crisis for cucurbit growers.

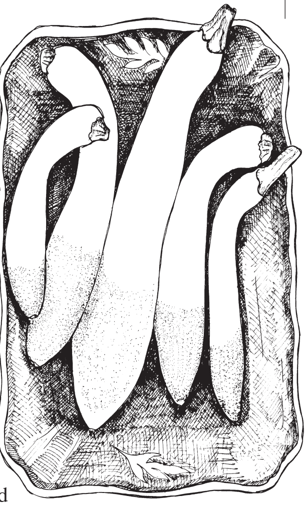
Minimum germination temperature 60°, optimal temperature range 70–90°.

Pests & diseases: See page 62 for additional information.

PM	Powdery Mildew	CMV	Cucumber Mosaic Virus
WMV	Watermelon Mosaic Virus	PRSV	Papaya Ringspot Virus
ZYMV	Zucchini Yellows Mosaic Virus		

Days to maturity are from date of seeding.

YELLOW



Saffron (42 days) Open-pollinated. We're just mad about Saffron, a 4–6" butter yellow semi-crookneck that excelled in our trials and has developed a strong following among our customers. Prolific, sweet and tender. Less warty than straightneck squashes. Small single-stem bush with open structure but very large leaves gives good sunburn protection. ②

***1504** A: 1/8oz, $1.80*
B: 1/4oz, $2.60
C: 1/2oz, $4.40
D: 1oz, $7.30
E: 4oz, $16.00
K: 1#, $34.00

Gentry (43 days) F-1 hybrid. Despite its name, this crookneck is not just for the 1%. Though one upscale squash with its butter-yellow smooth skin, mild sweet delicious flavor, and impressive production even under stress, our price keeps it attainable for the 99%. Best harvested at 5–6". Our trialer called it "the perfect crookneck." Now if only we could rein in the corporate crooknecks, we might all realistically aspire to be gentry! ⑥

***1507** A: 1/8oz, $3.60 B: 1/4oz, $5.60 C: 1/2oz, $9.00*
D: 1oz, $16.00 E: 4oz, $60.00 K: 1#, $210.00

Slick Pik YS 26™ (48 days) F-1 hybrid. What is slick about this pick is its extreme earliness and its consistent prolific production of slim glossy-skinned 8" fruits. These have minimal bulges or swellings for their seed cavities, long straight necks and excellent flavor. Very attractive and spineless, too. They have resisted heavy cucumber and squash beetle pressure at Roberta's farm for many years and have always been the last to succumb to wilt. Another fine breeding achievement by Brent Loy at the University of New Hampshire. ②

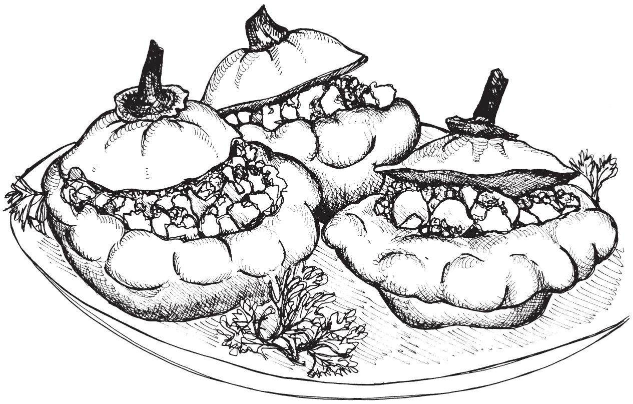
***1512** A: 1/16oz, $3.60 B: 1/8oz, $5.20 C: 1/2oz, $14.00*
D: 1oz, $24.00 E: 4oz, $90.00

Zephyr (54 days) F-1 hybrid. Its unique contrasting color pattern is as refreshing as the breeze its name evokes. Looks like a yellow squash dipped in pale green at the blossom end. Sometimes earliest fruits are yellow with green stripes. A straightneck type often with a slight curve at its neck—the product of the yellow crookneck in its breeding. Also has yellow acorn and delicata squash in its background. Large plants with open habit are easy to harvest. Deborah Jaffe of Long Days Farm in NY likes to sell baby Zephyrs by the pint. We prefer them at the 4–6" stage. Excellent grilled. ③

***1526** A: 1/16oz, $3.60 B: 1/8oz, $6.00 C: 1/4oz, $12.00*
D: 1oz, $24.00 E: 4oz, $90.00

Early Summer Yellow Crookneck - Organic (58 days) Open-pollinated. Deep yellow warted fruits with bulbous shape and narrow curved necks. Best when picked young. Native Americans grew it in the Northeast before it became a standard in early 19th c. American seed catalogs. The 1888 Burpee catalog rather uncomplimentarily described it as "covered with warty excrescences" but called the flavor "excellent." We have returned to the standard crook necked variety we used to sell and dropped the problematic "improved" variety from a few years ago. **Indigenous Royalties** ③

***1539** A: 1/8oz, $2.20 B: 1/4oz, $4.00 C: 1/2oz, $6.00*
D: 1oz, $8.00 E: 4oz, $17.00 K: 1#, $62.00



PATTY PAN

Gourmets call patty pans "scallopini" and consider them the most appetizing of the summer squashes. Were also known as simlins or cymlings a century ago.

Culture: Harvest as tiny buttons or up to fist sized.

Y-Star - Organic (48 days) F-1 hybrid. Bright yellow uniform scallops with **pale green stars** on the blossom end. Harvested small, they are quite sweet and tender, their open plant habit with minimal spines making them extremely easy to gather. Y-Star really pumps out the fruits over an extended period. In 2010, Donna Dyrek's first ripened July 18, a full two weeks ahead of Benning's, and they kept coming right till the end. ③

***1577** A: 1/16oz, $5.30 B: 1/8oz, $9.00 C: 1/4oz, $15.00*
D: 1oz, $40.00 E: 4oz, $150.00

Sunburst (52 days) F-1 hybrid. Among the most attractive of the Patty Pans with its bright yellow skin, a staple for market growers since winning the 1985 AAS. "Last one still standing," says Anne Elder, "when all else has gone by the wayside of powdery mildew and cold temperatures." ⑥

***1580** A: 1/8oz, $4.00 B: 1/4oz, $7.50 C: 1/2oz, $14.00*
D: 1oz, $22.00 E: 4oz, $80.00 K: 1#, $300.00

Benning's Green Tint (55 days) Open-pollinated. Also known as Farr's White Bush, developed by Charles N. Farr and introduced in 1914 by F.W. Bolgiano & Co. of Washington, DC. Farr selected for the uniform scallops and the **greenish-cream** coloring in the younger stages of the fruits. Rated by many as the best-tasting summer squash, especially if picked small at 2–3" diameter when they are especially fine-textured and tender. ②

***1590** A: 1/8oz, $1.80 B: 1/4oz, $2.50 C: 1/2oz, $4.00*
D: 1oz, $6.00 E: 4oz, $13.00 K: 1#, $35.00

LEBANESE

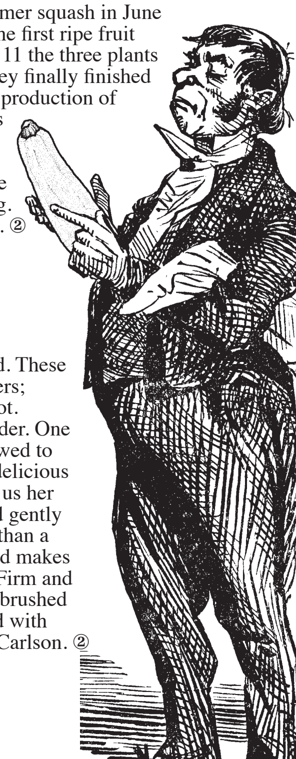
Also called Mid-East or Cousa squashes, Lebanese types typically have white-mottled pale green skin and a blocky bulbous shape.

Alexandria (47 days) F-1 hybrid. Summer squash in June from direct-seeding? You bet! In 2015 the first ripe fruit from Alexandria came June 27. By July 11 the three plants had already cranked out 11 and when they finally finished in mid-September they had doubled the production of the next best among eight varieties. This highly marketable Cousa was the first to produce and the last to succumb to PM. Strong plants with semi-erect single stems and an open habit for easy picking. Resists ZYMV, WMV and tolerates PM. ②

***1484** A: 1/8oz, $3.50*
B: 1/4oz, $6.00
C: 1/2oz, $10.00
D: 1oz, $19.00
E: 4oz, $72.00

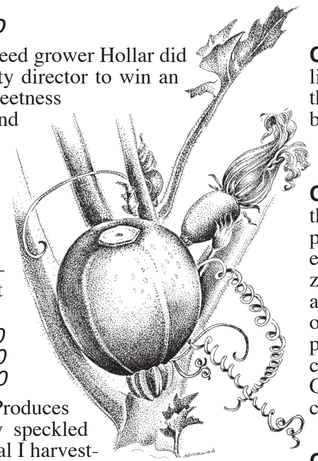
White Bush (50 days) Open-pollinated. These robust crawly plants are amazing croppers; yielded 15 fruits per plant in our trial plot. Pick fruits when they are young and tender. One customer insists they should not be allowed to grow beyond 6" and adds that they are delicious in Kousa Mahshi—perhaps she will tell us her recipe. *Marketers note:* must be handled gently so not to scratch. Relentless says better than a hybrid in many ways: "Sublime taste and makes better pickled chips than cucumbers." "Firm and flavorful, not at all watery, scrumptious brushed with olive oil and grilled, then showered with minced basil and mint," advises Elaine Carlson. ②

***1489** A: 1/8oz, $1.80*
B: 1/4oz, $2.60
C: 1/2oz, $3.60
D: 1oz, $5.00
E: 4oz, $10.00
K: 1#, $22.00



Free shipping for seed orders $30 and up!

ZUCCHINI *C. pepo*



Eight Ball (40 days) F-1 hybrid. Noted squash seed grower Hollar did not have to hire Minnesota Fats as their publicity director to win an AAS for Eight Ball in 1999. Eight Ball has the sweetness and squash flavor previously missing from round zucchini. The plant's open bush habit should please both home and market growers. Its earliness might well give you your first ripe squash of the season. They'll keep coming, too, till they run your table! Yes, the attractive shiny speckled dark fruits are mature when they're just a little bigger than pool balls. One customer reports oversized Eight Balls will turn orange and make great fall decorations. ②

1402 ***A**: 1/8oz, $3.50* ***B**: 1/4oz, $6.00*
***C**: 1/2oz, $10.00* ***D**: 1oz, $18.00*
***E**: 4oz, $64.00* ***K**: 1#, $240.00*

Jackpot (42 days) F-1 hybrid from Hollar. Produces high yields of long medium-dark green lightly speckled fruits slightly ridged near the stem. In my first trial I harvested 59 fruits from just two hills. Open plant habit features a long single-stem bush with few spines. Continuous production of firm 6 1/2" zukes, tender, mild and sweet. Take these to market and win the jackpot. ②

1404 ***A**: 1/8oz, $2.60* ***B**: 1/4oz, $4.20* ***C**: 1/2oz, $7.00*
***D**: 1oz, $12.00* ***E**: 4oz, $38.00* ***K**: 1#, $140.00*

Green Machine - Organic (45 days) F-1 hybrid. A bumper extra-early ongoing crop of medium-dark green shiny zukes is a fun ride all summer. In 2019 we trialed more than 20 modern zuke varieties and compared them to standard Raven. The results were stunning: despite the listed days to maturity, Green Machine was pumping out easy-to-pick perfect dark zucchinis 7–10 days before Raven. And Raven was outpaced, too: Green Machine made mild nutty dense fruit at a 4:1 ratio all season. While not spineless, Green Machine's open habit and wide branch spacing allows quick picking of unscratched fruit. Tip-top disease resistance. Intermediate resistance to PM, CMV, ZYMV, WMV. **NEW!**

1405 ***A**: 1/16oz, $4.20* ***B**: 1/8oz, $7.00* ***C**: 1/4oz, $10.00*
***D**: 1oz, $36.00* ***E**: 4oz, $98.00*

Modena - Organic (45 days) F-1 hybrid. Glossy dark green Modena was another star of our 2019 trial of more than 20 modern zukes versus standard Raven. Slightly earlier than Raven, it quickly puts the sleek zuke-production pedal to the metal like a Ferrari Modena 360. The very open upright plant habit ensures easy unscratched harvest and no squash dragging in the dirt. Mild nutty flavor and fine-grained texture add to Modena's refinement. Resistant to PRSV, CMV, ZYMV. **NEW!**

1407 ***A**: 1/16oz, $4.50* ***B**: 1/8oz, $8.00* ***C**: 1/4oz, $12.00*
***D**: 1oz, $40.00* ***E**: 4oz, $140.00*

Spineless Beauty (46 days) F-1 hybrid. In zucchini, unlike in politics, spinelessness is a virtue; when you harvest Spineless Beauty your hands will never itch. (And your palms won't itch either, unless you go into politics!) The 7 1/2x1 1/2" medium-dark green fruits of the Ambassador type are borne on open plants with spineless petioles. A standout in Sam Birch's and Highmoor Farm's summer squash trials. ⑥

1406 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.60* ***C**: 1/2oz, $8.00*
***D**: 1oz, $14.00* ***E**: 4oz, $46.00* ***K**: 1#, $160.00*

Raven (48 days) F-1 hybrid. Raven sets the market standard for dark zucchini. Its smooth-skinned glossy shapely greeny-black fruits make it the "prettiest of all zucchini, plant and fruit alike" to Anne Elder. Research by Dr. John Navazio showed that Raven's dark pigmentation contains more of the antioxidant lutein than lighter-skinned varieties. Relatively early concentrated production so market growers can make succession plantings. Performs well even in poor squash years. ⑥

1409 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $5.00* ***C**: 1/2oz, $8.50*
***D**: 1oz, $13.00* ***E**: 4oz, $54.00* ***K**: 1#, $190.00*

Black Zucchini (50 days) Open-pollinated. A misnomer as Black Zucchini is not as dark as Raven but instead dark green. Perfect for home gardeners who are looking for an open-pollinated zucchini with superior flavor, but who don't require record-breaking yields. Also popular among some commercial growers. Brought from California in 1931 by the Jerome B. Rice Seed Co. of Cambridge, NY. Fruits of greenish-white firm tender flesh with small seed cavities are best picked around 6". The flavor was well above average in our taste tests. Open plant habit makes picking relatively easy. ②

1411 ***A**: 1/8oz, $1.60* ***B**: 1/4oz, $2.30* ***C**: 1/2oz, $3.20*
***D**: 1oz, $5.20* ***E**: 4oz, $9.00* ***K**: 1#, $20.00*

GOLDEN ZUCCHINI

Sebring (50 days) F-1 hybrid. A beautiful **golden** straight-sided cylindrical zucchini, relatively free of green tips, with open plant habit for easy harvesting. Averaged 17 baby fruits per plant or 6 mature fruits. Rated "very early" in the 2006 OSU trial. Showed some drought stress in early July 2012, producing misshapen fruits, but bounced back nicely. Resistant to PM. ②

1424 ***A**: 1/8oz, $3.20* ***B**: 1/4oz, $6.00* ***C**: 1/2oz, $10.00*
***D**: 1oz, $18.00* ***E**: 4oz, $64.00* ***K**: 1#, $224.00*

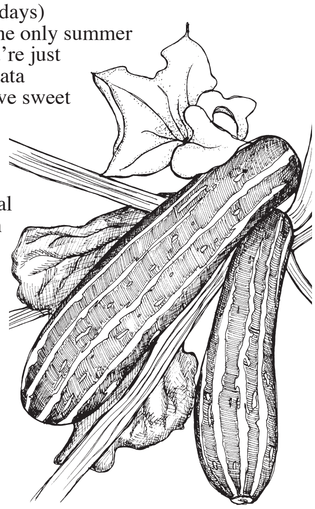
RIBBED & STRIPED

Cocozelle (53 days) Open-pollinated. Rich-flavored zucchini ribbed with light green stripes. This Italian heirloom was called Cocozella di Napoli in the 1800s. The term 'zucchini' (little squash) was first published in the USA by California seed house Aggeler & Musser in 1921. ②

1434 ***A**: 1/8oz, $1.60* ***B**: 1/4oz, $2.40* ***C**: 1/2oz, $3.60*
***D**: 1oz, $5.00* ***E**: 4oz, $9.00* ***K**: 1#, $20.00*

Cassia - Organic (55 days) F-1 hybrid. This Italian innovation bears the name of ancient patrician family Cassia, whose most famous member proposed the first Roman land reform laws in 486 BCE. He was promptly executed for pandering to the lower classes. Romanesco-type Cassia is a zucchini for the people, providing a bounty of slender, gently ribbed fruits on an easy-to-harvest open-habit plant. Although its flavor can't match beloved open-pollinated Costata Romanesca, Cassia sets dense nutty fruits earlier, prolifically and keeps going for weeks longer with no pithy cores. Tolerating cooler temps, Cassia stood out in the prolonged chilly Maine spring of 2017. Great for open-field culture in the North, but also recommended for early cool-season planting in high tunnels. ④

1450 ***A**: 1/8oz, $4.20* ***B**: 1/4oz, $7.00* ***C**: 1/2oz, $13.00*



Costata Romanesca - Organic (60 days) Open-pollinated. Will Bonsall calls it "the only summer squash worth bothering with, unless you're just thirsty." Deeply striped and ribbed, Costata resembles Cocozelle but with a distinctive sweet mildly nutty flavor. Also a productive source for tasty male squash blossoms and good for stuffing even when the fruits get way oversized. Tender skin damages easily, a liability for commercial transport. Slower to bear and not as high yielding as hybrid varieties. However, resisted a severe PM epidemic and still bore lovely fruits on Sept. 10 in 2016. If you want to win the blue ribbon for largest summer squash at your fair, grow Costata. Reaches 20 lb in a good year. ①

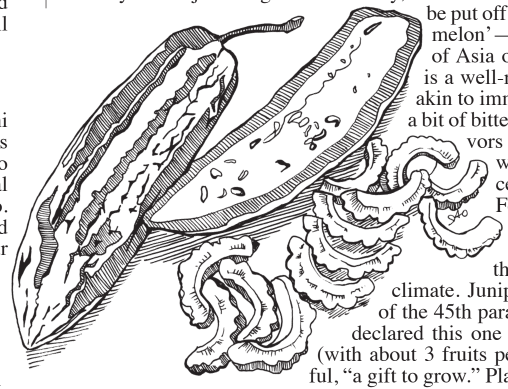
1457 ***A**: 1/8oz, $2.80*
***B**: 1/4oz, $5.00*
***C**: 1/2oz, $7.50*
***D**: 1oz, $12.00*
***E**: 4oz, $38.00*
***K**: 1#, $120.00*

ZUCCHINI RAMPICANTE

Tromboncino (60 days summer squash, 90 days winter squash) Open-pollinated. Also known as zucchini rampicante although, unlike other zucchini, a *C. moschata*. Tender, mild, sweet and nutty when harvested as summer squash at 8–12". Delicious steamed, grilled or sliced raw in salad. Italians use it in gnocchi and to stuff ravioli. When the green-tan fruits grow very long, they are good baked as winter squash. As might be inferred from its alias, its vines are rampant and should be trellised. "Out-tastes 95% of the Zuke pack," declares grower/breeder Relentless. ②

1460 ***A**: 1/8oz, $2.20* ***B**: 1/4oz, $4.00* ***C**: 1/2oz, $5.50*
***D**: 1oz, $9.00* ***E**: 4oz, $28.00* ***K**: 1#, $87.00*

BITTER MELON *Momordica charantia*



Jade Dragon (65 days) F-1 hybrid. Bright pastel-green bumps and fluting cover the curvaceous lines of this well-named 8–14" exotic beauty, looking every bit the jade dragon. Botanically, it is neither a melon nor a gourd. Don't be put off by the English name 'bitter melon'—instead, think balsam pear of Asia or karela of India, where it is a well-regarded tropical vegetable akin to immature squash that has only a bit of bitterness and absorbs other flavors really well. I have a friend who makes it a delicious centerpiece of his Solstice Feast. Now, through the wonders of modern breeding, we can enjoy a variety that has been adapted to our climate. Juniper Farm, in Quebec north of the 45th parallel, trialed 7 varieties and declared this one the best: early, productive (with about 3 fruits per plant) and oh so beautiful, "a gift to grow." Plants are commonly trellised beside porches for summer shade. Long prized for its medicinal qualities, both the leaves and fruits are used as antivirals and to reduce blood-sugar levels. The leaves can be made into tea or cooked as greens. This truly versatile plant deserves more attention. Plant in the warmest spot in your garden, and use a trellis for straight fruit. ③

1596 ***A**: 1/16oz, $6.40* ***B**: 1/8oz, $10.30*
***C**: 1/4oz, $20.00* ***D**: 1oz, $60.00*
***E**: 4oz, $180.00*

WINTER SQUASH & PUMPKINS

Cucurbita spp.

All **open-pollinated** except where noted.

Culture: Tender, will not survive frost. May be direct-seeded or transplanted. Direct seeding: Sow 4–5 seeds per hill when weather has warmed after danger of frost. Allow 4–6' between hills. Thin to 3 best plants. Use row covers and low tunnels to hasten maturity and reduce insect damage. Transplanting: Start indoors 3 weeks before setting out. Do not disturb the roots. Transplant bush varieties 18" apart, vining varieties 30" apart. Heavy nitrogen feeders. Excessive heat and/or drought can prevent blossom set, reduce yields. Winter squash can take one or two light frosts on the vine.

Minimum germination temperature 60˚, optimal temperature range 70–90˚.

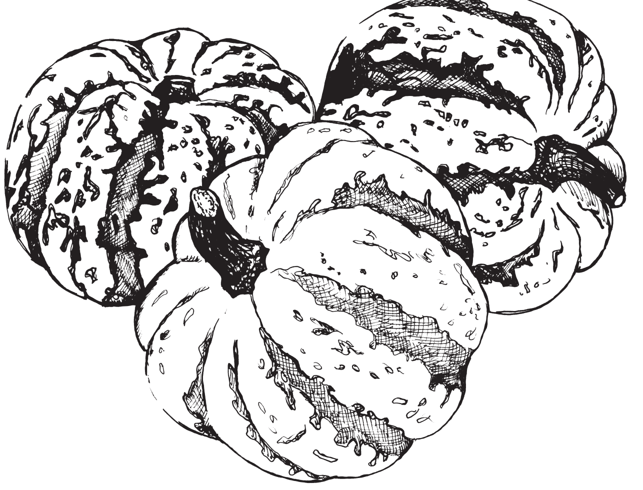
Diseases:
BR Black Rot
PM Powdery Mildew

Pests: To combat squash bugs without using pyrethrum or neem: protect young plants with row covers. Striped cucumber beetles and squash bugs overwinter in squash residues so burn or haul these away at season's end rather than cold composting them. Squash bugs lay their brown or brick-red egg clusters on the underside of the foliage, often next to the central vein. Hand-picking bugs in June and July will mitigate an endemic problem and greatly reduce squash bug damage.

Days to maturity are from direct seeding; subtract 20 days for transplants.

ACORN *C. pepo*

~280 seeds/oz. Dr. Loy found that acorn squash often are not fully ripe even when they attain full size and color. They continue to develop sugars until 45 days after pollination. Do not harvest until most of the fruits display an orange ground spot. Much of their reputation for watery, fibrous, inconsistent eating quality is probably the result of premature harvesting.



Carnival (85 days) F-1 hybrid. Carnival will give your senses a thrilling ride: first treating your eyes to a kaleidoscope of colors, each fruit flecked with shades of green, gold and yellow, no two exactly alike. Then wafting to your nostrils with its nutty squash aroma as it bakes, finally thrilling your taste buds with its full-bodied sweetness. This semi-bush acorn type produces medium-sized fruits near the crowns for easy picking. Jason Kafka reported outstanding success growing Carnival and **1624** Sweet Mama (p. 63) on landscape fabric. A marvelous seller at farmers markets. Will store for many months. Note: color variation is a function of temperature. In high temperatures Carnival will have less yellow and gold and more green. ⑤

1605 ***A***: *1/8oz, $3.60* ***B***: *1/4oz, $6.00* ***C***: *1/2oz, $11.00*
D: *1oz, $20.00* ***E***: *4oz, $68.00* ***K***: *1#, $255.00*

Sweet REBA - Organic (90 days) REBA stands for Resistant Early Bush Acorn. Even if you are acorn-averse, try REBA because this Cornell release is one of the sweetest acorns, flesh dry and substantial. Despite compact bush habit, heavy yields of 1–1½ lb fruit. Janine Welsby harvested 25 squash from four plants. They sold so fast that she didn't get to try one "but everyone said they were delicious." Resists PM, helping sugars develop. ③

1606 ***A***: *1/8oz, $2.80* ***B***: *1/4oz, $4.60* ***C***: *1/2oz, $8.00*
D: *1oz, $15.00* ***E***: *4oz, $56.00*

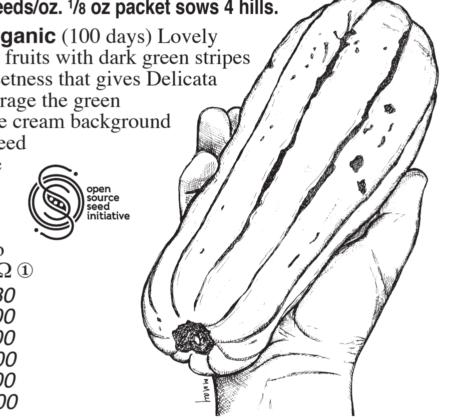
Table Queen (90 days) Black-green ribbed 11/2–2 lb fruits good for baking. Dry flesh is best eaten within 3–4 months after harvest. Introduced by the Iowa Seed Co. in 1913 and once known as Des Moines, Queen began a trend away from monster squashes in favor of smaller fruits. A similar squash was grown by the Arikara tribe in North Dakota. ③

1608 ***A***: *1/4oz, $1.80* ***B***: *1/2oz, $2.60* ***C***: *1oz, $4.00*
D: *4oz, $10.00* ***E***: *1#, $30.00*

Paydon (105 days) *Dropped for slow sales.*

DELICATA & DUMPLING *C. pepo*

~450 seeds/oz. 1/8 oz packet sows 4 hills.



Zeppelin Delicata - Organic (100 days) Lovely ivory-colored oblong 1 lb fruits with dark green stripes have the unsurpassed sweetness that gives Delicata its good reputation. In storage the green stripes turn orange and the cream background sometimes yellows. No need to peel—cooked skins are tender and nutty. Frank Morton selected it for stocky plants from an old strain, and he continues to maintain the seed. **OSSI** Ω ①

1611 ***A***: *1/8oz, $2.80*
B: *1/4oz, $5.00*
C: *1/2oz, $8.00*
D: *1oz, $14.00*
E: *4oz, $36.00*
K: *1#, $136.00*

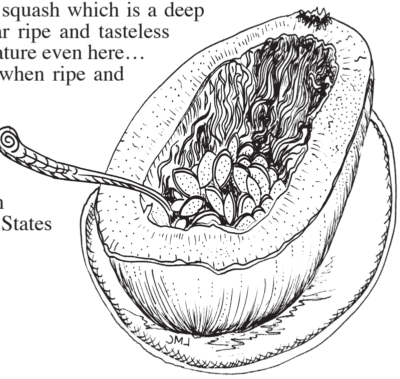
Sweet Dumpling (100 days) Stunning 1–1½ lb ivory-colored green-striped fruits shaped like miniature pumpkins sell themselves on the stand. *New York Times* food writer Regina Schrambling called them the "avocados of squash" for their inherent buttery richness and sweet-tangy taste. To experience its sweet dry and memorably rich deep orange flesh, make sure your Dumpling is ripe. Introduced by Sakata Seed Corp. of Yokohama, Japan, in 1976 and marketed as Vegetable Gourd. Sold better after they changed its name to Sweet Dumpling. ②

1614 ***A***: *1/8oz, $2.10* ***B***: *1/4oz, $3.30* ***C***: *1/2oz, $5.20*
D: *1oz, $9.00* ***E***: *4oz, $24.00* ***K***: *1#, $60.00*

SPAGHETTI *C. pepo*

~190 seeds/oz. 1/8 oz packet sows 5 hills.

Spaghetti (88 days) Penny Kupinski of Harrisburg, MO, took us to task for damning spaghetti squash with faint praise. "From your description you may not have had truly ripe, spaghetti squash which is a deep gold. Pale yellow is nowhere near ripe and tasteless and tough. Takes a long time to mature even here…but has a wonderful nutty flavor when ripe and needs only a little salt and pepper to be excellent…It is also a great keeper." Oblong fruits, generally around 4 lb with spaghetti-like strings in the flesh. First commercialized by Sakata in Japan in 1934 and brought to the States by Burpee two years later. ②



1616 ***A***: *1/4oz, $2.30*
B: *1/2oz, $2.80*
C: *1oz, $4.60*
D: *4oz, $11.00*
E: *1#, $35.00*

Pest and Disease Remedies for all Cucurbits: Cucumbers, Summer squash, Zucchini, Winter Squash and Pumpkin

Squash Pest: Striped Cucumber Beetle

- Cultural controls: use tolerant or resistant varieties, use transplants instead of direct seeding, rotate crops, till under crop debris soon after harvest, use **8874-6** floating row covers (p. 141) until flowers appear, use **8418** plastic mulch (p. 132), perimeter trap cropping (**1411** Black Zucchini (p. 61) and **1655** Blue Hubbard (p. 64) make particularly good trap crops), hand-pick early morning when beetles are very sluggish.
- Material controls: **8720** Surround, **8735** AzaMax, **8765-8** Pyrethrum, **8660** Neem oil (found on pages 136-139).

Pest: Squash Bug

- Cultural controls: rotation, till in cucurbit debris before winter and plant a cover crop, boards on soil surface near squash will attract bugs overnight which can be killed, destroy egg clusters on undersides of leaves, avoid mulching.
- Material controls: **8765-8** Pyrethrum on young nymphs, **8660** Neem Oil, and **8735** AzaMax (found on pages 136-139).

Pest: Squash Vine Borer

- Cultural controls: butternut squash is resistant, maximas & pepos susceptible; rotation, plow in squash vine debris soon after harvest, use floating row covers (8874), watch for wilting plant parts and destroy borer within.
- Material controls: Monitor for adult moths and apply **8762** spinosad (p. 139) during moth flight and up to one week later. Later applications are ineffective.

Disease: Powdery Mildew

- Cultural controls: Use small plots to slow spread, plant indeterminate (viney) varieties, control weed competition.
- Material controls: **8684-90** sulfur and whole milk; mineral or **8711** Stylet Oil in combination with potassium bicarbonate (**8666** MilStop); **8665** Monterey Bi-Carb; **8693** Regalia; **8702** Actinovate; **8710** Cease. **8672** Copper spray as a last resort. (Products can be found on pages 137.)

Disease: Bacterial Wilt

- Cultural control: Striped Cucumber Beetle is vector—control it; choose resistant varieties.

BUTTERCUP *C. maxima*

~160 seeds/oz.

Buttercup squashes, the main type grown in the Northeast, account for about 19% of New England winter squash sales. Fat round stems turn corky and woody when the squash is ripe; green in the stem signifies immature fruit.

Bush Buttercup Emerald strain (80 days) The supplier is no longer maintaining this variety. *Not available.*

Burgess Buttercup (95 days) New England's favorite winter squash, enjoyed for its sweet deep-orange flesh. Fruits, with an acorn-shaped button on the blossom end and flattened shoulders, average 3–4 lb with about 4 per hill. Stem is well dried when ripe. The original buttercup strain showed up in 1925 as a chance cross between Quality and Essex Hybrid in the trial garden at North Dakota Agricultural Experiment Station. After further selection by famous seedsman Albert Yaeger, Oscar H. Will of Bismarck introduced it in his 1931 catalog. Alan Kapuler has said, "If you pick only one squash to grow this is it." Jean Kennedy of Little Red Barn Produce in OR agrees: "This squash is not getting the attention others are and it is waaay better! Its texture is perfectly smooth, it has just the perfect sweetness and its flavor isn't overly squashy. Could be used in any recipe for dessert or dinner." ②

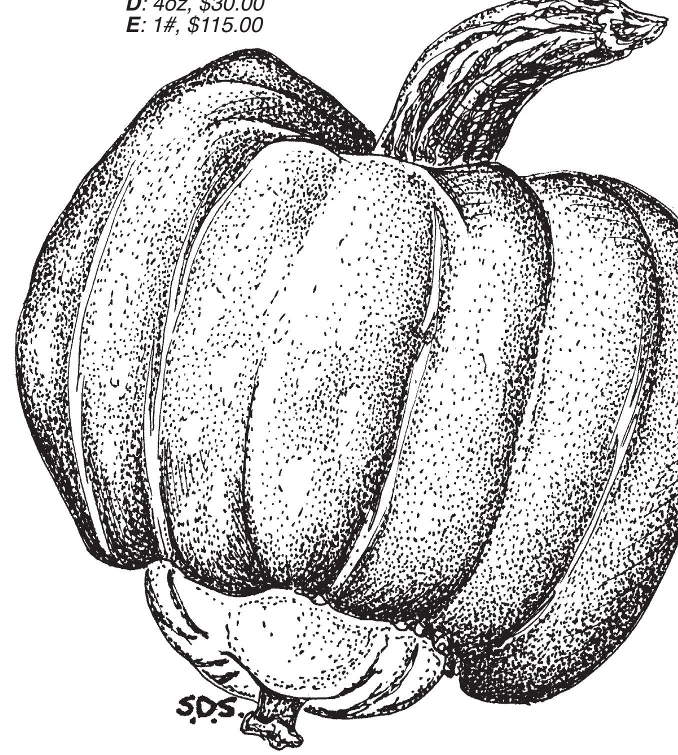
1628 ***A**: 1/4oz, $2.00* ***B**: 1/2oz, $3.00* ***C**: 1oz, $5.60*
***D**: 4oz, $14.00* ***E**: 1#, $42.00* ***K**: 5#, $200.00*

Bonbon (95 days) F-1 hybrid. I am reluctant to add hybrids where we have perfectly good open-pollinated varieties in the catalog. However, a dozen years after Johnny's won an AAS award for Bonbon, we decided to give this superior variety its due. Bonbon's advantages over the old Burgess strain are slight, but across the board they add up. First, consistency. Burgess can be variable, and in stressed seasons that may matter. Second, productivity. At 4–5 lb Bonbon is slightly the larger of the two, and at 4 fruits per plant, may yield more fruits as well. Third, appearance. Bonbon never fails to have the prominent grey button at its base that is the hallmark of the true buttercup. Fourth, flavor. Each at its best has superb flavor, but Bonbon is more likely to deliver it. Under highly fertile and favorable conditions, as when my rampant vines crawled through a manure pile during the very warm 2015 season, production can be astonishing. Although the seed is expensive, if your markets and profitability demand consistency, Bonbon may offer you value despite the cost. ③

1629 ***A**: 1/4oz, $4.70* ***B**: 1/2oz, $9.00* ***C**: 1oz, $16.00*
***D**: 4oz, $50.00*

Uncle David's Dakota Dessert - Organic (95 days) David Podoll calls this strain "the original buttercup." It has been in his family for 70 years. They've been selecting it for 40 years, crossing it with hubbards and other maximas, primarily for color, taste, sweetness, and vigor and hardiness in cold weather, but also for thick flesh, small seed cavities and higher productivity. The Podoll family bake it into pies without using any other sweetener. Also a versatile main-dish squash, with all the character that makes buttercup a New England favorite. **OSSI** Ω ①

1630 ***A**: 1/4oz, $3.00*
***B**: 1/2oz, $5.00*
***C**: 1oz, $9.00*
***D**: 4oz, $30.00*
***E**: 1#, $115.00*



KABOCHA *C. maxima*

~160 seeds/oz. 1/8 oz packet sows 4 hills.

Kabocha is a Japanese "pumpkin." Kabochas look like buttercups without the protruding cup on the blossom end.

Sweet Mama (88 days) F-1 hybrid. Mama is a grey-green 4x8" drum-shaped kabocha type with rounded shoulders and no cup. A week earlier than Burgess with outstanding sweet flavor. Among CR's favorite large winter squash, dependable Mama, averaging 4-6 lbs, pleases commercial growers as well as home gardeners. 1979 AAS. ⑤

1624 ***A**: 1/8oz, $4.40*
***B**: 1/4oz, $8.00*
***C**: 1/2oz, $14.00*
***D**: 1oz, $23.00*
***E**: 4oz, $88.00*

Thunder (88 days) F-1 hybrid. Our taste testers greeted this kabocha/buttercup hybrid with thunderous applause. They found the taste of its dry sweet dense 2" thick flesh enlightening. Gardeners will also like its productivity of 3–4 uniform 3½ lb fruits per plant. The 7x4" squash with no cup has jade sutures with jade splotches over forest green skin. Very early maturing for its type and, with long corky stems, easy to cut from the vine. Add a little boom to your winter storage fare. ②

1625 ***A**: 1/8oz, $3.50*
***B**: 1/4oz, $6.00*
***C**: 1/2oz, $11.00*
***D**: 1oz, $20.00*
***E**: 4oz, $68.00*

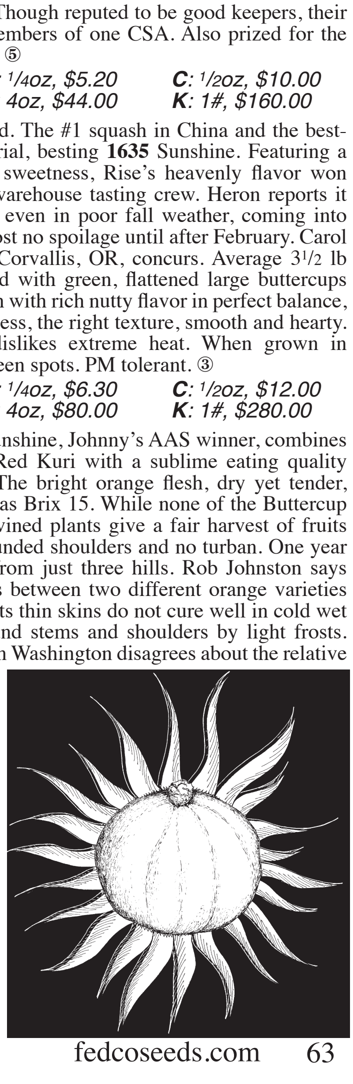
Red Kuri (92 days) Also called Uchiki Kuri; *kuri* means 'chestnut' in Japan. Growers admire its spectacular red-orange fruits, among the most attractive of all squashes. Its flavor elicits a wide range of comments from "the best winter squash" to "glorified zucchini, flavor like water." Liking the dry flesh of this Japanese squash, we think the truth lies somewhere in between. Teardrop-shaped fruits avg 3–4 lb. Though reputed to be good keepers, their thin skins do not store well, say members of one CSA. Also prized for the aroma of their blossoms when fried. ⑤

1626 ***A**: 1/8oz, $3.00* ***B**: 1/4oz, $5.20* ***C**: 1/2oz, $10.00*
***D**: 1oz, $16.00* ***E**: 4oz, $44.00* ***K**: 1#, $160.00*

Eastern Rise (95 days) F-1 hybrid. The #1 squash in China and the best-yielding hybrid in Heron Breen's trial, besting **1635** Sunshine. Featuring a creamy texture with just the right sweetness, Rise's heavenly flavor won unanimous praise from our feisty warehouse tasting crew. Heron reports it cures more reliably than Sunshine, even in poor fall weather, coming into full flavor after December with almost no spoilage until after February. Carol Deppe, of Fertile Valley Seeds in Corvallis, OR, concurs. Average 3½ lb fruits, attractive orange-red streaked with green, flattened large buttercups without the turban. Firm orange flesh with rich nutty flavor in perfect balance, the right sweetness, the right moistness, the right texture, smooth and hearty. Grows well in cool conditions; dislikes extreme heat. When grown in inadequate sunlight may develop green spots. PM tolerant. ③

1633 ***A**: 1/8oz, $3.60* ***B**: 1/4oz, $6.30* ***C**: 1/2oz, $12.00*
***D**: 1oz, $22.00* ***E**: 4oz, $80.00* ***K**: 1#, $280.00*

Sunshine (95 days) F-1 hybrid. Sunshine, Johnny's AAS winner, combines the spectacular scarlet color of a Red Kuri with a sublime eating quality previously lacking in red squash. The bright orange flesh, dry yet tender, sweet yet meaty, has tested as high as Brix 15. While none of the Buttercup types is high yielding, these short-vined plants give a fair harvest of fruits shaped like a buttercup but with rounded shoulders and no turban. One year we had 14 averaging 4.4 lb each from just three hills. Rob Johnston says they derived Sunshine from a cross between two different orange varieties developed at Johnny's. Heron says its thin skins do not cure well in cold wet autumns and can be damaged around stems and shoulders by light frosts. Kristen Davenport of Boxcar Farm in Washington disagrees about the relative storage capabilities of Sunshine and Eastern Rise. She says, "Sunshine was our longest storing squash with the exception of our local Maxima Hubbard type, better than any kabocha or acorn…as of Jan. 4 they are still good, hard, flesh perfect and a little sweeter than in the fall." ③



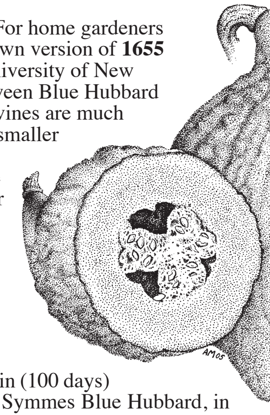
1635 ***A**: 1/8oz, $4.00*
***B**: 1/4oz, $7.00*
***C**: 1/2oz, $12.50*
***D**: 1oz, $23.00*
***E**: 4oz, $70.00*
***K**: 1#, $250.00*

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

HUBBARD *C. maxima*

~120 seeds/oz. 1/8 oz packet sows 3 hills.

Gregory, who introduced hubbards to commerce around 1850, called them "the acme of perfection in squashdom," though they now account for only about 5% of New England winter squash sales.



Baby Blue Hubbard (95 days) For home gardeners with space limitations, a scaled-down version of **1655** Blue Hubbard developed at the University of New Hampshire from a 1953 cross between Blue Hubbard and Bush Buttercup. Baby Blue's vines are much more compact and its fruits much smaller (about 4–5 lb), but their flavor at maturity doesn't match up to those traditional large hubbards and their yield is lower, too. ②

1654 ***A**: 1/8oz, $2.60*
***B**: 1/4oz, $3.30*
***C**: 1/2oz, $5.50*
***D**: 1oz, $8.00*
***E**: 4oz, $20.00*
***K**: 1#, $70.00*

Blue Hubbard New England strain (100 days) Introduced in 1909 by Gregory as Symmes Blue Hubbard, in honor of S.S. Symmes, a gardener who worked for his company for many years. Gregory considered it his best introduction, praising its flavor, productivity and storage qualities. The 1917 Gregory catalog said "close your eyes…and you would think you were eating cake." Bright yellow-orange dry sweet flesh. Each squash will feed a large family because fruits average 15–20 lb, sometimes exceeding 30 or 40 lb. Vines crawl all over the garden. Traditional New England Thanksgiving favorite. Prized also for its large white sweet seeds—delicious roasted. Blue Hubbard has proven effective as a perimeter trap crop for striped cucumber beetles. Completely encircle a main crop of other cucurbits with Hubbard vines, concentrating the pests in the border areas. ②

1655 ***A**: 1/4oz, $2.00* ***B**: 1/2oz, $3.00*
***C**: 1oz, $5.00* ***D**: 4oz, $13.00*
***E**: 1#, $35.00*

Weight equivalents

1 gram	.035 oz
3 grams	.106 oz
6 grams	.212 oz
24 grams	.851 oz
120 grams	4.24 oz
1/16 oz	1.77 g
1/8 oz	3.55 g
1/4 oz	7.09 g
1/2 oz	14.2 g
1 oz	28.4 g
4 oz	113.5 g
1#	453.6 g
2.2#	1000 g

BUTTERNUT *C. moschata*

~400 seeds/oz.

Culture: Butternuts should be started indoors to mature in our climate.

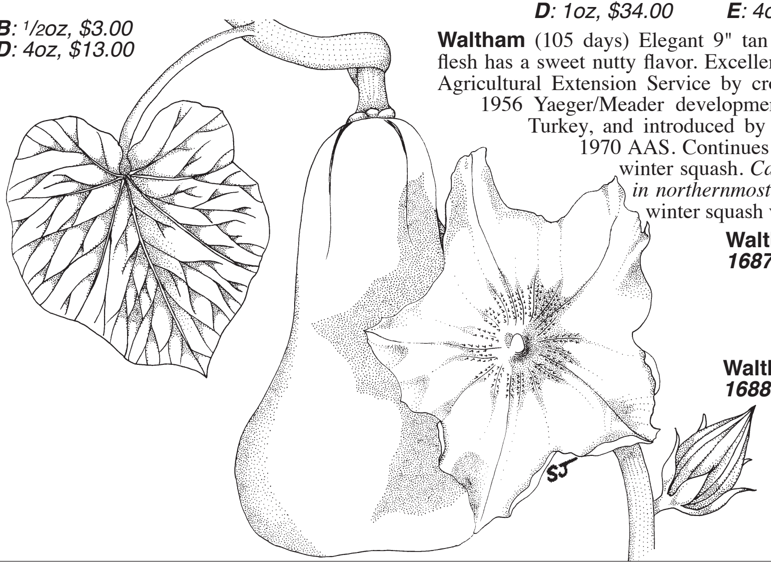
Butternut was introduced in 1936 by Joseph Breck and Sons of Boston, out of Canada Crookneck, an 1800s variety. The best keepers and the squash of choice in Zones 6 and south because of their relative resistance to the squash vine borers that torment other species. See also **1740** Cheese Pumpkin, p. 66.

Burpee's Butterbush - Organic (87 days) "Hands down the best" of the nine different butternuts Mark Fulford tried over the years. Smooth tan 2–3 lb fruits with small seed cavities and deep reddish-orange flesh are "as sweet as the best sweet potatoes." Superior nutty flavor, moist but never watery—though not as moist as the larger butternuts. Its earliness is a boon in cold summers. Though named and classed as a bush butternut, more accurately they have determinate vines that can crawl up to 10' in good fertility. Still a big advantage where space is precious. Average yield is 3–5 ripe fruits per plant. Excellent keeper. ①

1683 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.60* ***C**: 1/2oz, $8.00*
***D**: 1oz, $14.00*

Little Dipper (104 days) F-1 hybrid. In summer 2015, we trialed a slew of those personal-size, supposedly powdery-mildew–resistant, hybrid butternuts. We were shocked to find that all but one variety melted down and yielded poorly. While we pawed around salvaging the few fruits of this and that failure, Little Dipper's ongoing eruption of green stood in sharp contrast. The small fruits of the other personal butternuts come with restricted habit and often a correspondingly low yield. Dipper's plethora of uniform pale-tan 2–3 lb fruits are set on fully running weed-suppressing vines. We harvested an impressive 22 fruits from 3 plants. Open-pollinated Burpee's Butterbush still reigns for flavor, but Dipper offers nice smooth semi-dry texture and medium nutty sweetness through long storage. While supplier stats of other varieties in the trial advertised their supposed-PMR status boldly, Little Dipper's just warned of us of the crazy growth. For disease and worry resistance, we'll take vigor and volume any day. ⑤

1686 ***A**: 1/16oz, $3.60* ***B**: 1/8oz, $6.80* ***C**: 1/4oz, $11.00*
***D**: 1oz, $34.00* ***E**: 4oz, $128.00*



Waltham (105 days) Elegant 9" tan fruits weighing 4–5 lb. Orange dry flesh has a sweet nutty flavor. Excellent keeper. Bred by the Massachusetts Agricultural Extension Service by crossing New Hampshire Butternut (a 1956 Yaeger/Meader development) with a neckless *moschata* from Turkey, and introduced by Bob Young of Waltham, MA. Won 1970 AAS. Continues to be Anne Elder's most dependable winter squash. *Caution: in cool summers fails to ripen in northernmost areas*. Nevertheless, our best-selling winter squash variety.

Waltham ②
1687 ***A**: 1/4oz, $2.10*
***B**: 1/2oz, $3.00*
***C**: 1oz, $5.00*
***D**: 4oz, $11.00*
***E**: 1#, $28.00*

Waltham - Organic ③
1688 ***A**: 1/4oz, $2.50*
***B**: 1/2oz, $4.00*
***C**: 1oz, $7.00*
***D**: 4oz, $14.50*
***E**: 1#, $46.00*

Looking Ahead with 2020 Vision: Larisa Jacobson

Larisa Jacobson is a co-director and team member of Soul Fire Farm in upstate NY, a relatively small farm with a big mission. Working to create climate-resilient long-term systems, they are actively stewarding 6 acres to grow annual and perennial plants and chickens for sliding-scale doorstep-delivery farm shares to feed the wider urban community. They seek to end racism in the food system with a three-pronged approach: culturally relevant trainings for Black, Latinx and Indigenous farmers and programs for youths; by training in theory and action to uproot systemic racism; and by pursuing policy changes to address the stolen land and labor that the food system in this country is built on. Larisa took time from her busy harvest season to talk to Nikos:

Her critique of our food and agricultural system is incisive: "It has been off-track from the beginning, with land theft, stolen labor, genocide of indigenous peoples, slavery, forced migration, broken treaties, racial exclusion and discrimination by the government embedded into the system. While farmland ownership of those descended from European settlers is 98% (in this country), in New England it's almost 100%. 80% of farmworkers are Latinx; only 3% are in management. They receive lower wages, are exposed to pesticides, and often experience food insecurity. Throughout the U.S., Black farmers were pushed off of land by racialized violence and discriminatory practices."

Also at fault is our "conception of land as property to be 'used up.' The fact that agriculture and forestry contribute 20-25% of global emissions is a direct result of the ways land is used, not cared for and considered a resource, instead of a community of beings, a respected elder. The question is: who is agriculture sustaining and who has access to the food? Food insecurity is three times higher for Black/Latinx/Indigenous populations…which leads to a higher incidence of physical and mental health issues from food apartheid." Food apartheid refers to the lack of quality affordable fresh food in areas populated by people of color. White neighborhoods have four times the number of supermarkets.

From one who has been engaged in food justice work for much of her life, solutions are rapid-fire: "First is policy reform—economic support for regenerative agriculture that respects the land, restores and revitalizes the land, retains carbon." This would include "honoring and integrating African practices such as minimal or no tillage, rotational grazing, intercropping, cover cropping, agro-forestry." Second is "reparation and land rematriation, permanent and secure land tenure for those from whom it was stolen or whose forced labor built the entire food system of the country. Return land and create systemic support for its use to grow food, to restore native ecosystems, for ceremony and for cultural thriving." Larisa points to the Northeast Farmers of Color Land Trust and Sogorea Te Land Trust in CA as efforts to create land tenure. And thirdly we need "funding and policy support for culturally relevant training and assistance, led by people of color, that recognize the needs of farmers of color, such as living wages for farm workers, pathways to becoming land owners, and access to non-predatory capital and technical assistance."

Larisa is hopeful due to "increasing consciousness and more policy efforts to acknowledge the embedded racism in our systems. People are coming together to make change and to decolonize their relationship to the land…to think about a community of interconnected beings, as mediators of the relationship between soil and sky.

"What could that look like for the climate crisis?"

SPECIALTY & HEIRLOOM SQUASH

~120 seeds/oz.

Lower Salmon River - Organic (94 days) *C. maxima* This rare western treasure, an unsung hero among winter squashes, is among the best for eating quality. Once maintained by the old Abundant Life Seed Foundation before their unfortunate fire. In our 2009-10 winter squash taste test it won plaudits from our staff for its thick tasty sweet orange flesh, superb for squash pie. Large salmon-pink pumpkin-like fruits, quite variable in size, averaged 7.5 lb in our trial. ①

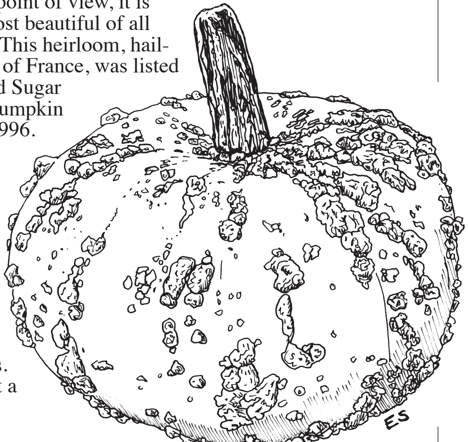
1665 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.80* ***C**: 1/2oz, $8.00*
***D**: 1oz, $14.00* ***E**: 4oz, $36.00*

Guatemalan Blue (95 days) *Dropped for slow sales.*

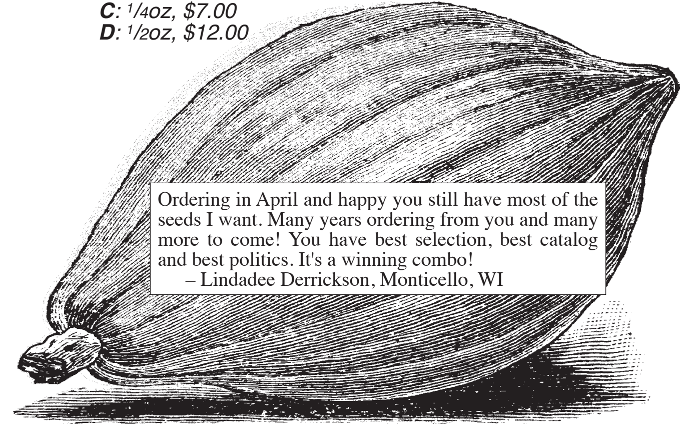
Sweet Meat (95 days) *C. max.* This tasty 12–15 lb slate-grey heirloom, shaped like a slightly flattened round pumpkin was maintained by an Oregon family for 100 years and sold by Gill Bros. of Portland, OR. A best-seller in Oregon, it has long been a western specialty variety that deserves a wider following. Its dry sweet nutty thick orange flesh improves in storage with a flavor similar to **1655** Blue Hubbard. ②

1668 ***A**: 1/4oz, $2.00* ***B**: 1/2oz, $3.00* ***C**: 1oz, $4.80*
***D**: 4oz, $13.00* ***E**: 1#, $36.00*

Galeux d'Eysines - Organic (98 days) *C. max.* Garden writer Barbara Damrosch says "it looks as if peanut-shaped worms were crawling about its surface." Depending on your point of view, it is either among the ugliest or most beautiful of all squashes. I vote for the latter. This heirloom, hailing from the Bordeaux region of France, was listed by Vilmorin in 1883 as Warted Sugar Marrow. It resurfaced at the Pumpkin Fair in Tranzault, France, in 1996. Shaped like rounded slightly flattened pumpkins, the 15 lb fruits have salmon-peach skins covered with large warts. Although Galeux is worth growing for beauty alone, its tender moist sweet orange flesh is delightful in soups or baked. Ripens easily from direct seeding even in middling squash years. For your autumn pleasure; not a good keeper. ②



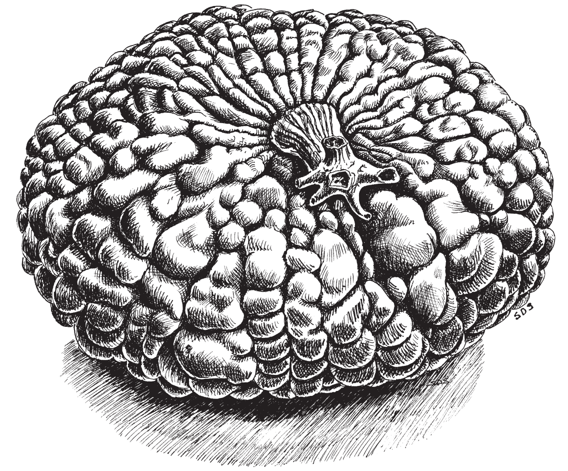
1672 ***A**: 1/16oz, $2.50*
***B**: 1/8oz, $4.20*
***C**: 1/4oz, $7.00*
***D**: 1/2oz, $12.00*



Ordering in April and happy you still have most of the seeds I want. Many years ordering from you and many more to come! You have best selection, best catalog and best politics. It's a winning combo!
– Lindadee Derrickson, Monticello, WI

Sibley (100 days) *C. max.* Also known as Pike's Peak. Among the very best for flavor, this once-revered brown-seeded heirloom first surfaced in the Missouri River watershed in the 1830s and is similar to kindred varieties found among the Winnebago Indians. Some of our seed is from Hiram Sibley, whose great-great-great-grandfather of the same name introduced it to commerce in 1887 through his seed company in Rochester, NY. Present-day Hiram has been growing it in Maine, selecting for trueness to type, taste and adaptability. We've stated they weigh 6–8 lbs, but Hiram wrote us: "I suppose some are that small, but I throw them to the chickens. I don't save seed from anything less than double digits. Most of mine are 12–16 lbs, with a few in the 18–20 lb range if September is warm." Vigorous 12–15' vines produce slate-blue fruit described by Michael Pollan as "pinched in both ends and bulging at the waist." Liberty, ME, gardener Jake Kennedy says these fetching fruits resemble baby seals hauled out on a ledge. New England seedsman James J.H. Gregory called it "magnificent" and Goldman rates it "the best of the bananas," a group she calls "top tier." Ours was rich, moist, flavorful and sweet, though we sampled it in October, too soon. The quintessential storage squash, not coming into its own until January after its orange flesh has dried and sweetened. Brought on board the Slow Food Ark of Taste. ①

1618 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.80* ***C**: 1/2oz, $8.00*
***D**: 1oz, $13.00*



Marina di Chioggia (100 days) *C. max.* The sea pumpkin of Chioggia is surely one of the most beautiful squashes with its deep ridges and bumpy protuberances. Variability adds to their appeal, color ranging from aquamarine to very dark green, most with bumps, some without. Though fruits grow quite large, averaging 15 lb, they have such eye appeal that growers report they are hot sellers. As delectable as they are handsome, even those harvested in an horrific squash year won accolades from our staff for their dense moist texture, rich sweetness and real substance. Delicious baked, in pies; ideal for gnocchi and ravioli. *Caution: rampant vines.* ②

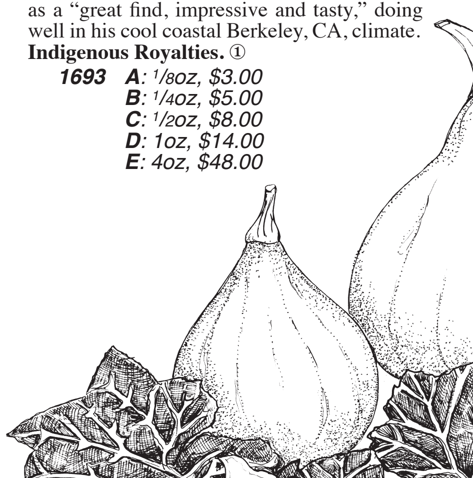
1673 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.30* ***C**: 1/2oz, $7.40*
***D**: 1oz, $10.00* ***E**: 4oz, $26.00*

Candy Roaster - Organic (112 days) *C. max.* This large Appalachian heirloom, possibly originating in North Carolina, is peerless as a baked squash, boasting superb eating quality worthy of its name. Luxuriant vines with large leaves mature somewhat warty pinkish-orange enlarged buttercup-shaped fruits of variable size with blue-green markings. Warmth brings out its sweetness and it does not reach full flavor potential in cool summers. Average 2 fruits per plant ranging from 5–25 lb. *Caution: Ripens in northern areas only in good growing years.* Not to be confused with North Georgia Candy Roaster. ①

1676 ***A**: 1/8oz, $3.20* ***B**: 1/4oz, $5.60* ***C**: 1/2oz, $9.50*
***D**: 1oz, $16.00* ***E**: 4oz, $48.00*

Seminole - Organic (110 days) *C. mos.* Creek-speaking Seminole Indians gave it the name *chassa-howitska*, meaning 'hanging pumpkin.' Rated one of the ten most endangered American foods by RAFT, these buff-colored 7" teardrop-shaped squashes were cultivated by the Seminoles in the Everglades region of Florida in the 1500s. The seeds were sowed at the base of girdled trees, so that the irrepressible vines, which grow in excess of 30', climbed the trunks, allowing the fruit to hang from the bare limbs. The deep orange flesh is sweeter than butternut, superb for pies, soup and baked treats, and the key ingredient in delicious Seminole pumpkin bread. Resistant to vine borers. Extremely hard rind must be cracked like a coconut. Stores nearly forever. A great performer in the south and along the Atlantic seaboard, it loves hot humid climates. Probably requires too long a season to thrive in the north, however Elisa Carbone of Hendricks, WV, advises that the immature fruits taste like extremely sweet zucchini, and Keith Barton praised Seminole as a "great find, impressive and tasty," doing well in his cool coastal Berkeley, CA, climate. **Indigenous Royalties.** ①

1693 ***A**: 1/8oz, $3.00*
***B**: 1/4oz, $5.00*
***C**: 1/2oz, $8.00*
***D**: 1oz, $14.00*
***E**: 4oz, $48.00*



PUMPKINS

100–280 seeds/oz, except as noted. 1/8 oz packet sows 3–8 hills.

Botanically, there are no such things as pumpkins. But we know one when we see one. "Pumpkins" listed here are three species, *Cucurbita pepo* (mini pumpkins, small pie and some jack-o'-lanterns), *C. moschata* (cheeses) and *C. maxima* (jack-o'-lanterns, decorative and culinary).

CULINARY PUMPKINS

Baby Pam (99 days) *Cucurbita pepo* Agway pie pumpkin has deep orange color and excellent uniformity. Vine-ripens 80–90% of its fruits even in a bad squash year, so it's popular among Maine commercial growers. Fruits average 3–4 lb, slightly smaller and earlier ripening than New England Pie with the same excellent quality. ②

1711 ***A**: 1/4oz, $2.30* ***B**: 1/2oz, $3.60* ***C**: 1oz, $6.50*
***D**: 4oz, $15.00* ***E**: 1#, $52.00*

Jarrahdale (100 days) *C. maxima* Add a touch of the unusual to your squash patch with this **grey-blue** Australian émigré. Somewhat sparse yields of 6–10 lb heavily ribbed fruits flattened on top like pumpkins, but with much sweeter dark moist flesh. Becky McCullough of Falmouth, MA, loved its heavenly aroma when she roasted it. Anne Elder calls it "an excellent eating pumpkin, mild, stringless, quick to bake, easy to blend into a great pie." Outstanding keeper. ③

1716 ***A**: 1/8oz, $2.30* ***B**: 1/4oz, $3.60* ***C**: 1/2oz, $5.00*
***D**: 1oz, $8.00* ***E**: 4oz, $16.00*

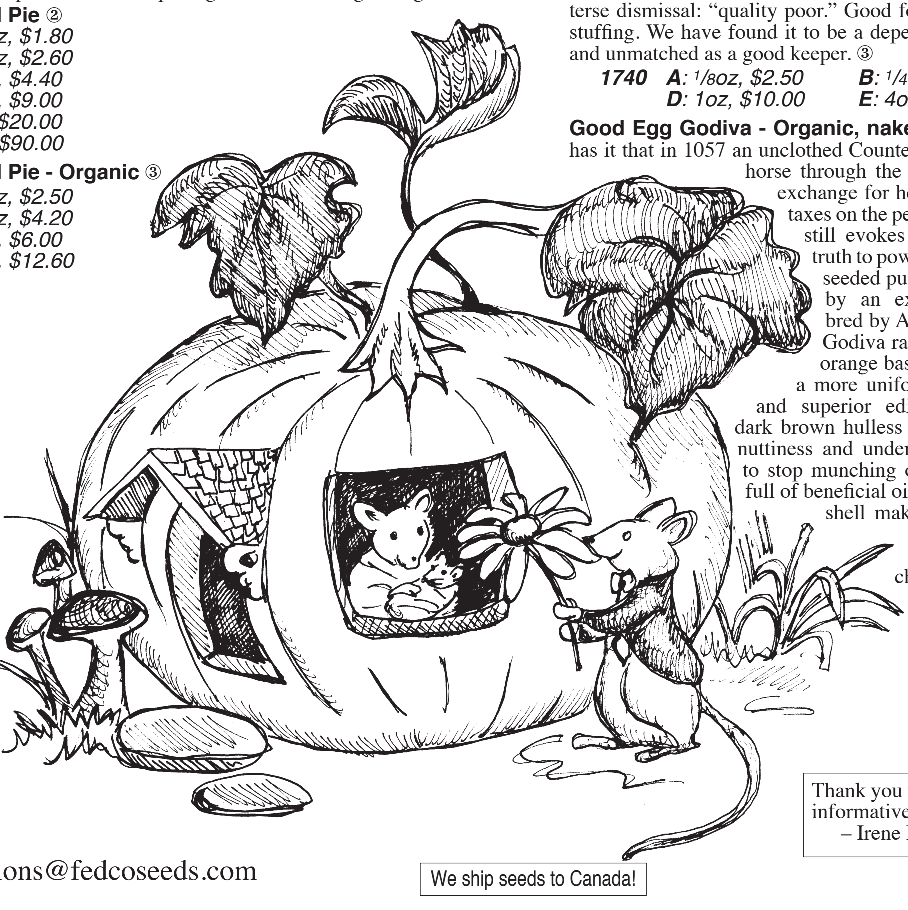
Winter Luxury - Organic (100 days) *C. p.* Back in 1988 when it was maintained only by the Jung Seed Co. in Wisconsin, Mark Fulford recognized that Luxury was "3–4 times as good for pies as New England Pie." Since generating rave reviews from Amy Goldman, it has become more widely available. Uniquely russeted finely netted golden-orange skin is beautiful. Joe Hiscott of Quebec enthuses "after making pumpkin pies for more than two decades, I will say with great conviction that the Winter Luxury pumpkin is by far the BEST pie pumpkin. Best pumpkiny taste, best colour, best texture, best consistency. They have a rustic, antique look and even grow into nice manageable sizes, nothing unruly or watery. The ideal pie pumpkin!" As a result we have brought back the superior strain Hiscott lauds, maintained by Jonathan Spero. It's definitely worth the slightly higher price. Vigorous vines bear globular 7–8 lb fruits with juicy tender slightly sweet pale orange flesh. Productive, too, but somewhat delicate and only fair keepers. ①

1718 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.80* ***C**: 1/2oz, $8.00*
***D**: 1oz, $12.00* ***E**: 4oz, $33.00*

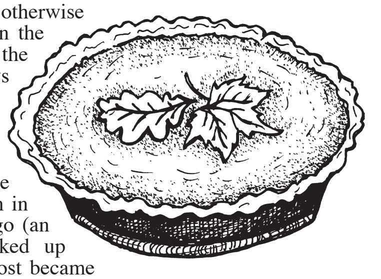
New England Pie (102 days) *C. p.* Also known as Small Sugar pumpkin. Probably selected out of Connecticut Field pumpkin by early white settlers, the standard pie pumpkin for generations. A robust yielder in good seasons. One warm year, our two hills produced more than 100 lb; the 25 pumpkins, all vine-ripe, averaged 4.26 lb. During cold summers production is lower and only half will vine-ripen. However, ripening continues during curing.

New England Pie ②
1719 ***A**: 1/4oz, $1.80*
***B**: 1/2oz, $2.60*
***C**: 1oz, $4.40*
***D**: 4oz, $9.00*
***E**: 1#, $20.00*
***K**: 5#, $90.00*

New England Pie - Organic ③
1720 ***A**: 1/4oz, $2.50*
***B**: 1/2oz, $4.20*
***C**: 1oz, $6.00*
***D**: 4oz, $12.60*



Long Pie - Organic (102 days) *C. p.* Probably a Native American variety, or selected therefrom. Various relatives have included Algonquin, Indian, Golden Oblong, and possibly St. George. The best pumpkin for Yankee pies. 3–5 lb fruits look like overgrown thick zucchinis to the uninitiated, but the telltale sign is an orange spot where the otherwise all-green elongated fruit rested on the ground. After ripening in storage, the whole fruit first blushes, then glows bright orange, signaling that its delicious smooth flesh is ready to be turned into incomparable pies. Your fork won't know where the whipped cream ends and the pie begins! Though widely grown in Androscoggin county 80 years ago (an old-timer remembers them stacked up on porches like firewood), it almost became extinct. LeRoy Souther, of Livermore Falls, ME, maintained Long Pie for more than 30 years and then brought seeds to cucurbit aficionado (and now JSS plant breeder) John Navazio's Common Ground Fair booth in the late 1980s. Navazio exhibited one at the 1988 Fair, and then reintroduced it to commerce through Garden City Seeds in Montana. Vines have enormous vigor and can achieve astonishing yields. Long Pies stored at 50° can keep all winter. Germinates poorly in cold soil. At the end of the season, small immature fruit make tasty "summer" squash. ①



1723 ***A**: 1/8oz, $2.60* ***B**: 1/4oz, $4.40* ***C**: 1/2oz, $7.60*
***D**: 1oz, $12.50* ***E**: 4oz, $36.00* ***K**: 1#, $100.00*

Naked Bear, naked seeded (105 days) *C. p.* F-1 hybrid. At first glance, it's a cute squat 2–4 lb orange mini-pumpkin with thick stubby handles. Perfect for the toddler u-pick market, you think. But, hello health conscious, what's this? Upon carving a tiny jack-o-smile, you discover sweet and nutty hulless seeds for roasting! And, if you abandon your jack-o-lantern altogether, extra culinary congrats—you've got a perfect one-pie portion of filling as well! Did autumn just get really awesome? You betcha: Productive Petite Pepita Pie Pumpkin. Say that 10 times fast! ②

1725 ***A**: 25 seeds, $4.30* ***B**: 50 seeds, $7.20*
***C**: 100 seeds, $12.00* ***D**: 200 seeds, $22.00*
***E**: 500 seeds, $48.00*

Cheese (110 days) *C. moschata* Always exhibition-hall favorites, these handsome 6–12 lb wide-ribbed flattened **tan** fruits, 1' across or more, look like big waxed wheels of cheese. Identified by Hedrick in *Cucurbits of New York* (1937) as "one of the oldest varieties cultivated in America," a distinctive group that has "remained remarkably stable." Introduced to commerce in 1807 by McMahon. Some folks call this variety Long Island Cheese because it was once the preferred pumpkin for pies in New York, New Jersey and on the island. Bright orange meat is coarse and quite fibrous, but its sweetness redeems its textural deficiencies and it does not deserve Hedrick's terse dismissal: "quality poor." Good for baking, deep cavity lends itself to stuffing. We have found it to be a dependable producer even in our climate and unmatched as a good keeper. ③

1740 ***A**: 1/8oz, $2.50* ***B**: 1/4oz, $4.00* ***C**: 1/2oz, $7.00*
***D**: 1oz, $10.00* ***E**: 4oz, $24.00*

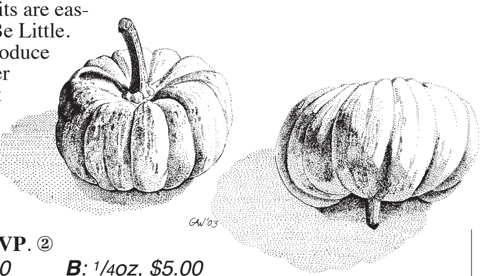
Good Egg Godiva - Organic, naked seeded (110 days) *C. p.* Legend has it that in 1057 an unclothed Countess of Mercia, Lady Godiva, rode her horse through the Coventry marketplace at midday in exchange for her husband rescinding his oppressive taxes on the people. Over 950 years later, that image still evokes protest and a willingness to speak truth to power. We are delighted to list this naked-seeded pumpkin strain selected and maintained by an excellent woman farmer. Originally bred by Allan K. Stoner of the USDA in 1972, Godiva ranges 6–12 lb with green streaks over orange base. The Good Egg Farm selection has a more uniform shape, from globe to tall globe, and superior edible seed quality. Plentiful plump dark brown hulless seeds show a good balance of mild nuttiness and underlying rich earthy potency. It's hard to stop munching on this healthy roasted snack that is full of beneficial oils, protein and zinc. Good Egg's hard shell makes it an excellent storage pumpkin, keeping 9–10 months at 40–70°. Feed yourself, your animals and your chickens all winter and spring. Start inside as transplants, or direct seed once soil temp reaches 60°. Ω ①

1743 ***A**: 1/8oz, $3.00*
***B**: 1/4oz, $5.00*
***C**: 1/2oz, $9.00*
***D**: 1oz, $15.00*
***E**: 4oz, $52.00*

Thank you for the most interesting/entertaining/informative catalog in the world of seeds!
– Irene Bensinger, Eatonville, WA

SMALL ORNAMENTAL PUMPKINS

Wee-B-Little (90 days) *C. p.* This triumph of miniaturization impressed the 1999 AAS judges. Bred to please home and market gardeners and kids everywhere. Unribbed fruits are easier to decorate than Jack Be Little. Small vines (only 6–8') produce 3–4 mini 8–12 oz fruits per plant. Fruits, more upright than Jack Be Little with darker orange rind, look just like tiny pie pumpkins and could serve as such. Sturdy dark green stems provide prickle-free handles. ~380 seeds/oz. **PVP**. ②

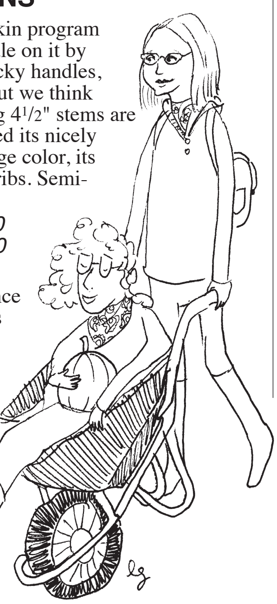


1702 ***A**: 1/8oz, $3.00* ***B**: 1/4oz, $5.00*
***C**: 1/2oz, $8.00* ***D**: 1oz, $12.00*
***E**: 4oz, $37.00*

Jack Be Little (95 days) *C. p.* Tiny ornamental pumpkins weigh only about half a pound. They're great for decorations and a big hit with kids. Flattened, heavily ribbed fruit with vigorous stems. Good to eat, excellent stuffed. Short vines, about 3–5'. Introduced by Hollar in 1987. ~380 seeds/oz. ②

1705 ***A**: 1/8oz, $2.40* ***B**: 1/4oz, $3.70* ***C**: 1/2oz, $6.00*
***D**: 1oz, $10.00* ***E**: 4oz, $24.00*

MEDIUM PUMPKINS



Diablo (98 days) *C. p.* F-1 hybrid. If your pumpkin program has been out-Fox'd, maybe it's time to get a handle on it by going to the devil. Tom Fox, with its massive stocky handles, has defined the recent trend in jack-o'-lanterns, but we think this devil has a more refined look; Diablo's strong 4½" stems are wide at the base and taper gently upward. We liked its nicely rounded Foxy fruit shape as well as its deep orange color, its intermediate 12–22 lb size and its medium-deep ribs. Semi-determinate vines. PM tolerant. ⑤

1710 ***A**: 1/8oz, $5.00* ***B**: 1/4oz, $8.00*
***C**: 1/2oz, $14.00* ***D**: 1oz, $26.00*
***E**: 4oz, $92.00*

Lumina (100 days) *C. max.* Originated as a chance sport in one of Hollar's California pumpkin fields about 20 years ago. A lustrous **ivory** pumpkin that kids will love, excellent for both carving and painting. Lumina stores well if not exposed to frost, so a face painted on its smooth surface will last for weeks instead of days. Under stress, the fruit may develop blue patches. Fruits 8–10" high average 12 lb, variable depending on growing conditions. Chefs like its sweet yellow flesh. Good for puréeing or making pumpkin soup. Whether you eat it, decorate it, or both, Lumina is sure to please. ②

1713 ***A**: 1/8oz, $2.80* ***B**: 1/4oz, $4.60*
***C**: 1/2oz, $8.00* ***D**: 1oz, $14.00* ***E**: 4oz, $34.00*

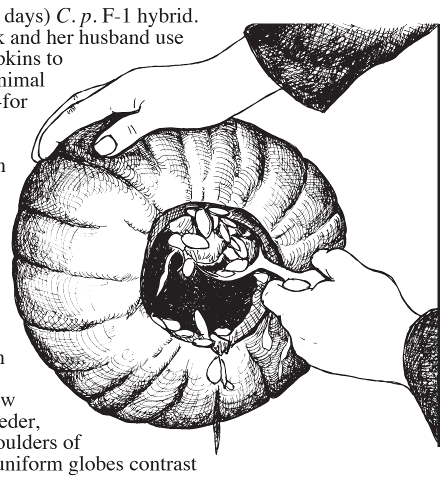
Rouge Vif d'Étampes (105 days) *C. max.* Also known as Cinderella. Amy Goldman says it "coasts on its looks alone…insipid and watery." "Not so," dissents Donna Fraser-Leary of Charlotte, VT. "You do this…versatile pumpkin an injustice…While their flavor is somewhat milder than a winter squash and the texture somewhat fibrous…My daughter and I like it so much, we steam the pumpkin and eat it still in the shell. I use it in all my favorite recipes that call for squash or pumpkin." Rosalind Creasy says chefs in France use it as a base in their vegetable stock and bake garlic, onions and leeks in the pumpkin to scoop right from the shell into a Swiss cheese leek soup. While folks may disagree about its eating quality, no one can gainsay its spectacular beauty. This French heirloom turns the pumpkin patch into a glowing blaze with its decorative deeply ridged burnt-orange to red 7–30 lb flattened fruits. Because of its thin skin, not a great keeper. Originated in France in the early 1800s, named for a town south of Paris. Introduced to the U.S. by Burpee in 1883. ②

1727 ***A**: 1/8oz, $2.30* ***B**: 1/4oz, $4.00* ***C**: 1/2oz, $7.00*
***D**: 1oz, $10.00* ***E**: 4oz, $26.00* ***K**: 1#, $65.00*

Tom Fox (110 days) *C. p.* Employing neither hounds nor horses, seeking neither sport nor kill, our purchaser Nikos Kavanya has in recent years been on a fox hunt. Denned, at last! Actually, about the only thing vulpine about this jack-o'-lantern is the name of the New Hampshire farmer who developed it, and his craftiness in breeding in such sturdy stocky handles that set an industry standard when Johnny's introduced his pumpkin in 1994. These thick-walled 10–20 lb deep orange fruits have pronounced ribs. They are not uniform in size or shape, but perhaps that variability only adds to their appeal to kids and other Halloween thrill seekers. Rampant vines, so space accordingly. Be foxy and add this classic variety to your repertoire. ③

1744 ***A**: 1/8oz, $1.90* ***B**: 1/4oz, $3.20* ***C**: 1/2oz, $5.00*
***D**: 1oz, $7.00*

LARGE PUMPKINS



Bellatrix - Organic (100 days) *C. p.* F-1 hybrid. Expert trialer Donna Dyrek and her husband use many varieties of big pumpkins to create impenetrable viny animal control around their to-die-for sweet-corn patch. A few years ago, Donna trialed this seed before it was even introduced; the breeder labeled it "squash" and a number. At the end of the season, Donna beckoned staff trial-guy Heron to the plot: "Did you see how beautiful this is?" She and Heron have each been growing this pumpkin ever since and recommend it for catalog inclusion. Now named Bellatrix by the breeder, the sturdy ribbed round shoulders of these deep crayon-orange uniform globes contrast nicely with dark thick stems. Reliably ranging between 15–25 lbs, Bellatrix has been productive in central Maine through dry years and wet ones. The ideal Jack size and shape, it's got a broad face for you to carve a wicked smile! Intermediate resistance to PM. ④

1745 ***A**: 25 seeds, $7.00* ***B**: 100 seeds, $24.00*
***C**: 500 seeds, $90.00* ***D**: 1,000 seeds, $150.00*

Connecticut Field (115 days) *C. p.* Also known as Big Tom. Grown for jack-o'-lanterns and stock feed, gets 15–25 lb, sometimes more. Not uniform in size or shape. Heirloom grown by Native Americans, adopted by colonists before 1700, and a staple of 19th-century catalogs. Vick's offered for 10¢ an oz and 50¢ per lb in 1877. Ripens for us in good years, but often we must pick green. **Indigenous Royalties** ④

1748 ***A**: 1/4oz, $1.80* ***B**: 1/2oz, $2.80* ***C**: 1oz, $4.00*
***D**: 4oz, $8.00* ***E**: 1#, $22.00* ***K**: 5#, $105.00*

Howden (115 days) *C. p.* For 40 years Howden's symmetrical fruits with hard ridged skin and thick flesh have so much set the standard for large round jack-o'-lanterns both for fresh market and shipping that they are now a New England tradition. Large spreading vines produce 4–6 deep orange fruits per plant, typically much more uniform than Connecticut Field while weighing 20–35 lb, often able to ripen fully in our climate. Developed by John Howden in the Berkshires of Massachusetts and introduced by Harris Moran in 1973. Tolerant to BR.

Howden ②

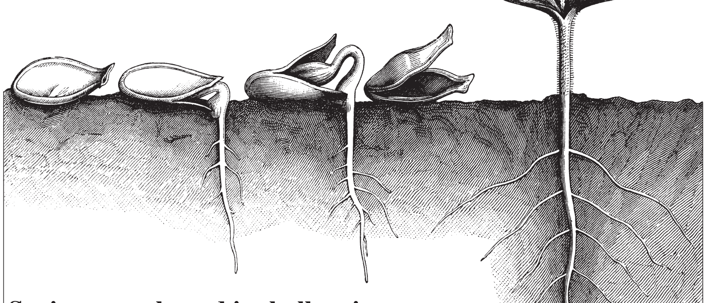
1751 ***A**: 1/8oz, $2.20* ***B**: 1/4oz, $3.20* ***C**: 1/2oz, $4.30*
***D**: 1oz, $6.30* ***E**: 4oz, $13.00* ***K**: 1#, $44.00*

Howden - Organic ①

1752 ***A**: 1/8oz, $2.40* ***B**: 1/4oz, $3.80* ***C**: 1/2oz, $6.30*
***D**: 1oz, $8.40* ***E**: 4oz, $22.00* ***K**: 1#, $60.00*

Big Max (120 days) *C. max.* These are big pumpkins. Not big enough to compete in giant-pumpkin contests (you'd need Dill's Atlantic Giant, not offered by us) but certainly sufficient for exhibiting in your county fair or for displaying as an awesome jack-o'-lantern. Typically weighs 50–100 lb and measures up to 70" in circumference! ④

1757 ***A**: 1/4oz, $2.00*
***B**: 1/2oz, $3.20*
***C**: 1oz, $5.00*
***D**: 4oz, $10.00*
***E**: 1#, $30.00*



Saving squash seed is challenging.

We list three different species of the genus *Cucurbita*.

Different varieties within the same species will cross readily, but crossing does not occur between the different species. Seeds from a crop that has been exposed to other cucurbits of the same species won't grow true to type. If you are saving seed, you need to isolate your crop from others of the same species by at least 1500', or protect it from insects that would bring unwanted pollen, and hand-pollinate it yourself.

TOMATILLO & HUSK CHERRY

All *Physalis* are **open-pollinated**. **Days to maturity are from date of transplant.**

TOMATILLO *Physalis ixocarpa*

~500 seeds/g.

Culture: Start indoors 2 weeks after tomatoes lest they get leggy. If seedlings do get leggy, transplant them deep so the stems can root. Some like them pruned, others let them sprawl. Space plants 3' apart for the sprawlers, closer if you plan to prune. Ideal germination temperature 75–85°.

Purple Blush - Organic (68 days) Mislabeled as 'Purple Lush' in our trials, a moniker that stuck the more we observed its lush production of large 2"+ fruits on sprawling 5' plants. Everyone who tasted them used words like 'sweet,' 'fruity,' 'yummy,' which explains why we switched from Verde Puebla. Roast them with pumpkin seeds and hot pepper, then grind together with spices for a delicious and nutritionally dense repast. The fruits blush purple where they are kissed by the sun. ①

4012 ***A**: 0.2g, $2.20* ***B**: 0.4g, $3.50* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $26.00*

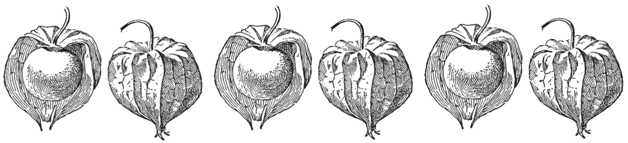
HUSK or GROUND CHERRY *P. pruinosa*

~900-1400 seeds/g.

A treat inside every paper wrapper! Same genus as tomatillo and Chinese Lantern, fruits ripen inside their protective husks. As clusters of berries sweeten, they turn from green to golden yellow, drop off the decorative branching plants, and reach perfection as their husks thin to a near-gossamer papery texture. The sweet berries have an indescribable flavor, great for raw snacks. Don't eat them unripe—they can be a powerful emetic.

Culture: Need filtered light and temperatures at least 75°, preferably closer to 90°, to germinate. Cover seeds with just a light sprinkling of soil and place the flats in the hottest part of the greenhouse, transplanting after last spring frost. Husk cherries tolerate a touch of frost but give up when temperatures dip below 30°. In a good year, about half will ripen in time. Will readily self sow, although volunteers may not mature as quickly as those started indoors.

Pests: To protect plants against potato beetles, use floating row cover (p. 141). Adults overwinter and lay eggs on solanaceous crops, especially tomatillos and husk cherries. If beetles get in, hand-picking adults and squishing eggs helps in small plots.



Aunt Molly's - Organic (72 days) Though native to Central America, this heirloom was widely grown in Poland and is now on board the Slow Food Ark of Taste. Won over Heron who had previously been indifferent to husk cherries. "Sweet and zesty." Some folks compare the flavor of these 1/2–3/4" fruits to pineapple, some to tangerines. ②

4005 ***A**: 0.2g, $2.20* ***B**: 0.4g, $3.00* ***C**: 1g, $4.00*
***D**: 2g, $5.60* ***E**: 10g, $18.00*

CAPE GOOSEBERRY *P. peruviana*

Similar to Husk Cherry, but larger, more upright plant with larger husks and fruits.

Ambrosia - ECO (115 days) The grower calls this his heart-plant and we can see why, if only because we fell instantly in love from first bite, with taste notes ranging from an exuberant YES! to full-on rhapsodizing about the extraordinary flavor (hints of coconut milk and pineapple, bright and citrusy). A vigorous annual in the Northeast bearing yellow cherry-tomato–sized fruits on bushes 3–4' tall and wide. A tender perennial in warmer climes, more tropical in nature than some others but selected for 5 years in our more temperate climes. Start seeds in early spring around the same time as tomatoes, transplanting out after all danger of frost has passed. Begin picking fruit in the fall as the husks around the fruit dry completely. The fruit lasts unrefrigerated for weeks in the husk. Great for jams, salsas, and fresh eating. ①

4009 ***A**: 0.2g, $2.20* ***B**: 0.4g, $3.00*

TOMATO

Lycopersicon esculentum

Culture: Tender, cannot tolerate frost. Usually started indoors Feb–April. Avoid using fresh manure as it causes lush foliage with few ripe fruits. Instead use generous amounts of compost or well-rotted cow or horse manure to boost plant vigor, and crushed eggshells at the bottom of each hole for calcium. Heavy phosphorus needs. Responds well to foliar sprays.

Minimum germination soil temperature 50°, optimal range 60–85°.

- **Determinate** (Det.) bush varieties may be staked, should not be pruned.
- **Indeterminate** (Ind.) climbing varieties are customarily staked and pruned. Tomato experts Carolyn Male and Kokopelli's Dominique Guillet both oppose pruning, arguing more abundant foliage provides more photosynthesis.

Organically and sustainably grown seed was rinsed with a sodium hypochlorite solution to reduce risk of seed-borne disease. This treatment poses no health risks.

Diseases:

ASC	Alternaria Stem Canker	N	Nematodes
EB	Early Blight	SEPT	Septoria Leaf Spot
F	Fusarium	TSWV	Tomato Spotted Wilt Virus
GLS	Grey Leaf Spot	TMV	Tobacco Mosaic Virus
LB	Late Blight	V	Verticillium

Days to maturity are from date of transplanting.

TOMATO MIX

Heirloom Tomato Mix - Organic We'll mix a bunch of varieties (all organically grown seed) in one packet. You'll get different colors, sizes, shapes and flavors (no cherries). With an open mind, a good sense of observation, unjaded taste buds and acute deductive faculties, you can figure out which ones you like and order them by name next year. ~500 seeds/g.

4149 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $26.00*

Pests and Disease Remedies for Tomatoes

Early Blight shows up as drying and dying leaves at the bottom of the plant. EB can be managed culturally, should not result in significant crop loss. Mulching deters EB by reducing rain splash on foliage. Do not compost affected plants as EB can overwinter even on dead tissue.

- Cultural controls: Rotation; avoid stressing plants; staking; minimize leaf wetness; mulching; indeterminate varieties are more resistant/tolerant; disinfect stakes & cages.
- Material controls: **8693** Regalia, **8702** Actinovate, **8710** Cease, all page 137.

Late blight usually starts on the foliage of the plant. Early in the season, late blight infection shows as roundish lesions on leaves that uniquely will cross the center vein of the leaf. Later, blotches appear on stems. Still later, hard crusty lesions form on fruits.

LB on tomatoes is not seed-borne and does not survive on dead tissue. Letting plants freeze on the soil surface kills LB spores.

- Cultural controls: Destroy cull potatoes & potato volunteers, avoid overhead irrigation.
- Material controls: **8693** Regalia, **8672** Copper, **8710** Cease, all p. 137.

Septoria Leaf Spot can appear almost overnight. It is characterized by yellowing and small circular spots on older leaves. It can eventually spread to the entire plant in conditions of high humidity and temperatures. It can be spread by wind or carried on clothing and tools. Septoria can live over the winter on live tissue, so don't compost affected plants.

- Cultural controls: Space plants for good air circulation.
- Material controls: **8672** Copper; **8693** Regalia, **8666** MilStop, all p. 137.

Anthracnose

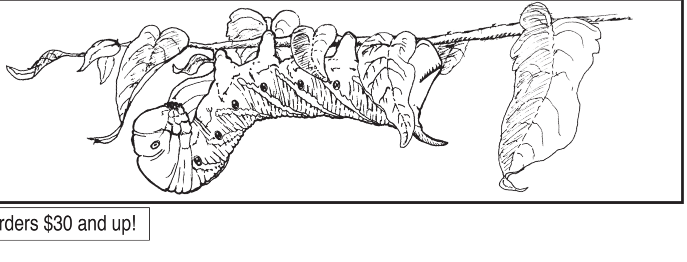
- Cultural controls: Rotation; mulching; minimize plant wetness; staking; use compost.
- Material controls: **8666** MilStop, **8672** Copper, **8693** Regalia, **8710** Cease, all p. 137.

Tomato Hornworm

- Cultural control: Look for frass (droppings) and handpick. Eeeuww! Use a blacklight to find them. See if you can get the chickens to eat them.
- Material controls: **8753-6** Bt kurstaki, **8762** Spinosad, p. 139.

Tarnished Plant Bug

- Cultural controls: Floating row covers (**8874-6**) p. 141, good weed control.
- Material controls: **8765-8** Pyrethrum, p.e 139.



Open-pollinated RED & PINK SLICERS

250-650 seeds/g.

Glacier - Organic (56 days) Det. with potato-leaf foliage. Glacier ripens red around the same time as the sub-arctics with about the same size (1–2"), and almost no cosmetic defects except yellow shoulders, but there the comparisons end. Glacier's rich tomato flavor relegates the insipid sub-arctics to the compost pile. It is also superior to the highly touted Siberia tomato, to Stupice, to Early Temptation, to Bloody Butcher, in fact, to every other tomato in the same class that we've tried. Originally from Sweden, 1985. ①

***4018 A**: 0.2g, $2.30*
***B**: 0.4g, $3.40*
***C**: 1g, $6.00*
***D**: 2g, $8.00*
***E**: 10g, $25.00*

Oregon Spring - Organic (58 days) Det. Recommended as a "hedge" in northern climates for cold summers. When most other varieties fail to ripen in time, Oregon Spring matures good-sized fruit in August, actually performing best during cool summers. Develops more cosmetic defects in the heat and humidity. Bears succulent almost seedless red fruits, up to 4" but somewhat variable. Tastes unusually good for such an early variety. Bred and developed from Russian parents by Dr. Baggett and released in 1984. Not suitable for market growers. Resistant to V. ①

***4025 A**: 0.2g, $2.10 **B**: 0.4g, $3.60 **C**: 1g, $5.00*
***D**: 2g, $8.00 **E**: 10g, $25.00*

Cosmonaut Volkov - Organic (65 days) Ind. "Sturdy, productive, cool-weather tolerant and great flavor," lauds Anne Elder. A superb home-garden variety with good commercial potential both outdoors and in tunnels, Cosmonaut always tastes good, occasionally sublime. Produced the best two tomatoes Nikos has ever eaten, from different gardens in different years. Usually ripens quantities of deep red slightly flattened 8–12 oz globes at the beginning of August when tomato craving is at its peak. What makes Cosmonaut so special is its juice: sweet, rich and full-bodied. Even in cold summers, it will produce dependably by mid-August. Catalog editor Elisabeth Benjamin noted her Cosmonauts ripened nice fruits outdoors into early October last year, weeks after her other slicers had croaked. Volkov was the Russian explorer who fell through space. From Dnepropetrovsk in Ukraine, brought to America by the Seed Savers Exchange. ①

***4038 A**: 0.2g, $2.50 **B**: 0.4g, $3.70 **C**: 1g, $6.00*
***D**: 2g, $9.00 **E**: 10g, $24.00*

Preventing Late Blight

Dry conditions spare us some years, but late blight is here to stay, especially for field-grown crops. Cool temperatures, moist conditions, still air and lack of sunshine favor sporulation; spores can occur and advance in any condition of high humidity. LB might spread quickly…or not; wind-borne spores can travel hundreds of miles on storm fronts, but also can be baked into submission by the hot sun. Once LB lesions develop on your plants take immediate action to halt the disease in hopes of salvaging a crop. Our recommendations:

- Where possible, use resistant varieties.
- Try to find tolerant cultivars—use anecdotal evidence and experiment.
- Grow your own tomato plants or buy locally grown seedlings. Avoid big-box seedlings. Know your farmer!
- Do not use saved potatoes as seed stock. Purchase only new certified disease-free seed potatoes. More potato info on page 117.
- Plant in areas with full sun and few wind blocks. Avoid shade and moist environments. Facilitate air movement. Maintain high soil fertility.
- If you choose to spray, have a plan and materials on hand, so you can make quick and timely application(s) when conditions indicate. More about control materials on the left, and beginning on p. 137 in our Organic Growers Supply section where we offer a full roster of products.
- Most market growers and many home gardeners now grow at least a portion of their tomatoes under cover, which greatly reduces vulnerability though still requires vigilance.

INFORMATION SOURCES:

See vegetablemdonline.ppath.cornell.edu/ for excellent photos and info.

University of Maine Cooperative Exension: Potato IPM bi-weekly tells where LB infections have been confirmed in Maine or the eastern United States. umaine.edu/potatoes, 1-888-USE-UMCE.

Or use the forecast model uspest.org/risk/tom_pot_map to assess potential for spore germination and lesion formation in your area.

Pruden's Purple - Organic (72 days) Ind. We continue to dispute whether Pruden's is superior to Brandywine, but, opinions aside, Pruden's is early for its size and makes a great sandwich tomato. We are back to our customary potato-leaved strain that bears irregular pink 1 lb fruit with very few seeds, a silken texture and rich tomato taste, nicely tart with a balanced undertone of sweetness neither insipid nor cloying. Brett Grohsgal praises its flavor, productivity and disease resistance. We don't know why it's called purple, when it is not. ①

***4049 A**: 0.2g, $2.10 **B**: 0.4g, $3.60 **C**: 1g, $5.00*
***D**: 2g, $8.00 **E**: 10g, $24.00*

Bizhiki - Organic (75 days) Ind. In this fast-paced world of rapid changes, who remembers Buffalo greenhouse tomato? We last carried it a decade ago and lamented its demise when the breeder Enza Zaden dropped it. We also missed poking fun at a city whose weather we judged to be worse than ours. I was a tomato grower back then and have been searching ever since for a greenhouse tomato with the same fantastic flavor—that would do well in the Northeast. Ontario biodynamic farmer Cory Eichman, who has the same long memory, set to work selecting year after year from the original hybrid Buffalo for great taste combined with crack resistance. When he had met those criteria with a uniform bright red 3" globe-shaped open-pollinated tomato, he renamed it Bizhiki, the Anishinaabe word for Buffalo. ①

***4050 A**: 0.2g, $2.30 **B**: 0.4g, $3.60 **C**: 1g, $6.00*
***D**: 2g, $9.00 **E**: 10g, $25.00*

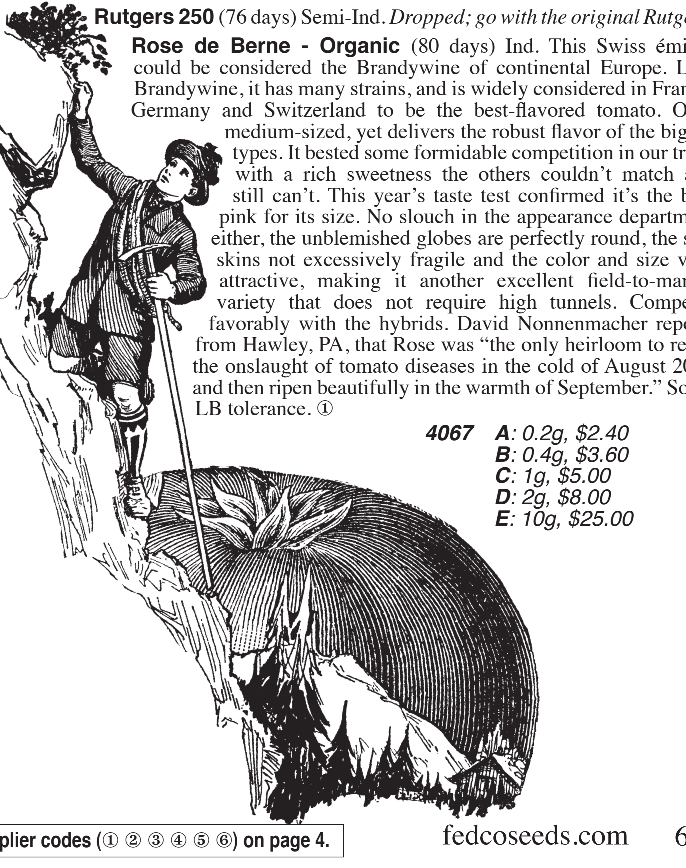
KC 146 - Organic (75 days) Semi-Det. AKA Campbell's 146. When our seed buddy Nate Kleinman at the Experimental Farm Network touted this variety, we couldn't quite believe he was extolling a processing tomato—from Campbell's no less. But we value his opinion and grew it out to taste for ourselves. The results are in and now you can judge for yourself whether it has substantial fresh tomato flavor. Released in 1956 by Campbell's tomato breeder George B. Reynard, KC 146 became the flavor standard for their soup. It performed well for the times, being both wilt- and crack-resistant, but was eventually replaced by newer varieties with better disease resistance. The productive 5' plants produce a plethora of 9 oz red round fruit with good rich tomatoey flavor. Good for canning, evoking childhood comfort food. Mmm'mmm good! ①

***4052 A**: 0.2g, $2.30 **B**: 0.4g, $3.60 **C**: 1g, $6.00*
***D**: 2g, $9.00 **E**: 10g, $25.00*

Rutgers Original - Organic (75 days) Ind. Long considered an outstanding slicing, cooking and canning tomato, Rutgers' medium-sized 4–6 oz mostly uniform and unblemished deep oblate fruits with a rich red interior and pleasing texture have that great old-time flavor, delicious and juicy. When Rutgers University "refined" the variety in 1943, they took out some of the vininess but also some of the flavor. Our taste tests confirmed that the original indeterminate strain is better, so that's the strain we offer of this famous New Jersey tomato. The Campbell's Soup Co. developed it in 1928, a cross between Marglobe and JTD. Resistant to F1, V1, ASC, GLS. ①

***4055 A**: 0.2g, $2.10 **B**: 0.4g, $3.40 **C**: 1g, $4.80*
***D**: 2g, $8.00 **E**: 10g, $21.00*

Rutgers 250 (76 days) Semi-Ind. *Dropped; go with the original Rutgers.*



Rose de Berne - Organic (80 days) Ind. This Swiss émigré could be considered the Brandywine of continental Europe. Like Brandywine, it has many strains, and is widely considered in France, Germany and Switzerland to be the best-flavored tomato. Only medium-sized, yet delivers the robust flavor of the bigger types. It bested some formidable competition in our trials with a rich sweetness the others couldn't match and still can't. This year's taste test confirmed it's the best pink for its size. No slouch in the appearance department either, the unblemished globes are perfectly round, the soft skins not excessively fragile and the color and size very attractive, making it another excellent field-to-market variety that does not require high tunnels. Competes favorably with the hybrids. David Nonnenmacher reports from Hawley, PA, that Rose was "the only heirloom to resist the onslaught of tomato diseases in the cold of August 2017 and then ripen beautifully in the warmth of September." Some LB tolerance. ①

***4067 A**: 0.2g, $2.40*
***B**: 0.4g, $3.60*
***C**: 1g, $5.00*
***D**: 2g, $8.00*
***E**: 10g, $25.00*

German Johnson - Organic (80 days) Ind. An old heirloom probably from Virginia or North Carolina. This large regular-leaf plant, one of the parents of Mortgage Lifter, is known for its copious yields of pink meaty fruits often exceeding 1 lb, mild with more than a touch of sweetness. ③

4069 ***A**: 0.2g, $2.20* ***B**: 0.4g, $3.30* ***C**: 1g, $4.70*
***D**: 2g, $7.00* ***E**: 10g, $19.00*

Soldacki - Organic (80 days) Ind. You won't find a better sandwich tomato than Soldacki, a heavy producer of meaty tasty 14 oz pink globes with a good mix of sweetness, tartness and real tomato flavor. Tall potato-leaf vines. Originally from Krakow, Poland, brought to Cleveland, OH, around 1900, then to Albany, NY. Prone to cracking in wet seasons. ①

4071 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00*

Pink Brandywine - Organic (82 days) Ind. Potato-leaf foliage. Pink Brandywine is the heirloom that launched a movement, leading many gardeners to be flavor-positive preservation-aware seed-savers. But as Brandywine's popularity exploded, so did its production as commercial bulk seed. Like all heirlooms, our favorite old-fashioned OPs with their hand-selected hand-me-down genetics need special care. We've partnered with Daniel and Corinne at Blackbird Rise of Palermo, ME, to keep building the Brandywine legacy. Through four summers they've raised hundreds of plants from our classic Sudduth/Quisenberry strain and selected for that perfect Brandywine color, flavor, bountiful size and shape that says "homegrown comfort." The result is this extra-select strain of 1 lb oblate pink meaty beefsteaks that trends away from small-fruited, less-vigorous and late-ripening traits. Of course, that precious balanced deep flavor with perfect hints of tart still rings true! Ripens unevenly through the season. ①

4075 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

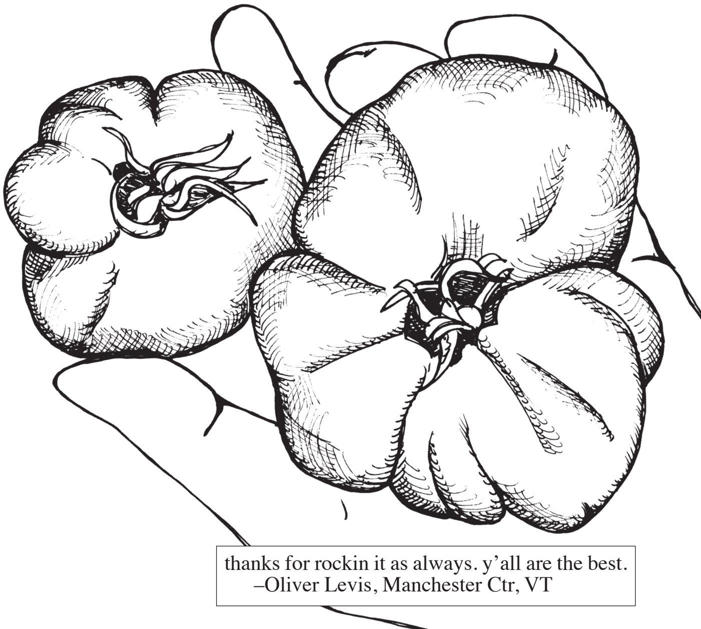
Mark Twain - Organic (85 days) *Crop failure. Not available in 2020.*

Weisnicht's Ukrainian - Organic (85 days) Compact Ind. with potato-leaf foliage. Thanks to Ryan Voiland of Red Fire Farm in Granby, MA, for helping put this little known but extremely tasty heirloom on the map. In 2015 at the annual MA commonwealth tomato contest in Boston, Voiland won first prize in the heirloom category for his entry of Weisnicht's. A panel of food writers, chefs, produce experts and state officials judged the tomatoes on flavor, firmness/slicing quality, exterior color and shape. The oft-bi-lobed medium-large 8–18 oz scrumptious pink fruits are sparse seed bearers. The flavor—sweet, rich and complex with delicious acid overtones—received an unusually high 4–4.5 out of 5 in our taste evaluations. They begin producing in late August or early September with a 3–4 week moderately productive main harvest period. One cold wet summer, it ranked #1 among the 43 varieties in our trials. We got our original seeds from Scott Weisnicht of Waupun, WI. Weisnicht also supplied us with our first seeds for the much-revered rare **984** Pride of Wisconsin melon (p. 43). ①

4083 ***A**: 0.2g, $2.40*

Tiffen Mennonite - Organic (86 days) Ind. This heirloom from Mennonites in Wisconsin was first introduced to the Seed Savers Exchange by Thane H. Earle of Whitewater, WI. Tiffen has many similarities to the more famous Brandywine—potato-leaf foliage, pink skin, and rich old-fashioned tomato taste that has twice drawn raves at staff tastings. The large rough oblate beefsteak fruits (avg 13 oz) are a tad bigger and later than Brandywine. For a superb sandwich tomato or a fresh garden snack Tiffen is hard to top. ③

4087 ***A**: 0.2g, $2.10* ***B**: 0.4g, $3.20* ***C**: 1g, $4.00*
***D**: 2g, $6.50* ***E**: 10g, $20.00*



> thanks for rockin it as always. y'all are the best.
> –Oliver Levis, Manchester Ctr, VT

Open-pollinated SLICERS OF OTHER COLORS

250-650 seeds/g.

Pink Berkeley Tie-Dye - Organic (68 days) Compact Ind. Here is a tomato variety with a name and appearance we ex-hippies can love. Tie-Dye is not only the best of all the "Boar Series" released by talented breeder Bradley Gates of Wild Boar Farms in Napa, CA, but it is also by far the best of all the new tomatoes I've tried. Forget the rest of the Boars (good as many of them are), forget the Artisans™ , forget especially the weird-tasting Indigos—Tie-Dye has real flavor. Not only flavor but also amazing early productivity, size, disease tolerance, and is it ever a looker. In a jungle among some 15–20 other varieties, this beefsteak accounted for at least half of my early ripe full-sized tomatoes for two years in a row. Fruits usually bi-lobed, averaging about 9 oz, the color of **port wine with metallic green stripes**. They have an engaging tanginess, almost as if lightly salted. The spiciness is just what you might expect from this striped beauty. Seems to hold up well in the field and after picking. A winner both for the marketer and the home gardener. ②

4041 ***A**: 0.2g, $3.70* ***B**: 0.4g, $6.60* ***C**: 1g, $15.00*
***D**: 2g, $25.00* ***E**: 10g, $96.00*

Garden Peach - Organic (71 days) Ind. **Yellow fruits blush pink** when ripe and have thin fuzzy skins somewhat like peaches, soft-skinned, juicy and very sweet. Light fruity taste is not what you'd expect in a tomato. Burpee in 1893 called it "delicate, melting in the mouth like a grape." For well over a century savvy gardeners have brought Peach's little 2–4 oz fruits indoors before frost to keep for several weeks. Jim Stockwell from North Carolina would not be without it. "Not only are they early and prolific but their unusual flavor and no core sizes make them perfect for grilling without falling apart." Doreen Mundie says also wonderful dried. Amy Goldman places its 1890 origins with plant breeder Elbert S. Carman, owner and editor of *The Rural New-Yorker*. It was introduced as a novelty in the 1890 catalog of Hallock & Son's of Queens, NY. Showed some tolerance to LB in Colrain in 2014. ③

4045 ***A**: 0.2g, $2.20* ***B**: 0.4g, $3.20*
***C**: 1g, $5.50* ***D**: 2g, $8.00*
***E**: 10g, $22.00*

Black Prince - Organic (75 days) Ind. In 1997 when we were among the first to offer this émigré from Irkutsk, Siberia, we were way ahead of our time. These iridescent 5–7 oz **garnet-colored** globe-shaped fruits are among the most uniformly handsome in the tomato kingdom. This prince has earned a reputation for outstanding flavor similar to that of Black Krim, but without Krim's fragility and tendency to crack. A superior home-garden tomato that is also a reliable heavy-yielding field-to-market choice for growers without high tunnels. ③

4053 ***A**: 0.2g, $2.30* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $9.00* ***E**: 10g, $25.00*

Goldie - Organic (75 days) Ind. Considered synonymous with Dixie Golden Giant. **Deep orange** beefsteak fruits, frequently bi-lobed, average 16–20 oz. Though reputed to be more than 150 years old, Goldie was introduced commercially in 1977 by Gleckler's Seedsmen. I rate it as the best of all orange tomatoes, delivering its rich flavor with an extraordinary velvety texture. Often Roberta's first large tomato to ripen. Erica Myers-Russo from CT advises, "Don't harvest it until it has a distinct rosy blush" (on the bottom). Very productive. Will catface under cold or excessively wet conditions. Several people who grew our Heirloom Mix said Goldie was their favorite. ①

4054 ***A**: 0.2g, $2.30* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $9.00* ***E**: 10g, $25.00*

Cherokee Green - Organic (75 days) Ind. Tomato expert Craig LeHoullier noticed and selected this mutant of Cherokee Chocolate around 1997. Scarcely a generation later, many consider Cherokee Green to be the best-tasting green tomato. Not an heirloom, but tastes like one. And for our staff taste buds, it has it all: assertive taste with just the right acidic balance and a complexity that pops it above the average in the almost fourscore tomato varieties we trialed. The 8–12 oz beefsteak fruit ripen **green with an amber tinge** at the blossom end when fully ripe. Productive and with a bit of disease tolerance. **OSSI, Breeder Royalties.** ①

4058 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $9.00* ***E**: 10g, $24.00*

Green Zebra - Organic (77 days) Ind. A most unusual beast in the tomato menagerie, this zebra starts out **green with darker green stripes**, softening and **blushing yellow and apricot** when it ripens. It might have remained a mere curiosity but for its delicious sweet rich flavor. Small-medium 4–5 oz fruits are emerald green inside. Perfect exteriors hold up under adverse conditions and don't crack. "The perfect salad tomato," says Anne Elder. Sometimes incorrectly shows up on lists of heirloom tomatoes, but was developed by Tom Wagner of Tater Mater Seeds in 1985 from four heirlooms. Kent Whealy ranks it in his top ten tomatoes. Susceptible to SEPT. ①

4057 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $20.00*

Cherokee Purple - Organic (77 days) Ind. but with relatively short vines. No list of the best-tasting heirloom tomatoes would be complete without Cherokee Purple, an unusual variety from Tennessee said to have originated with the Cherokee Indians. Fruits are globes to slightly oblate, averaging 10–13 oz, with **dusky brownish-purple skin, dark green shoulders** and brick-red flesh. The real attraction is their rich taste, described as "sweet rich juicy winey," "delicious sweet," and "rich Brandywine flavor" by aficionados maintaining it in the Seed Savers Exchange. Ranks in my top five for flavor. Expect some concentric cracking. Amy LeBlanc suggests the vines should not be pruned because the delicate fruits sunburn easily. **Indigenous Royalties.** ①

4059 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $24.00*

Paul Robeson - Organic (78 days) Ind. This Russian heirloom was named in honor of Paul Robeson (1898-1976) who befriended the Soviet Union. Athlete (15 varsity letters at Rutgers), actor (played Othello in the longest-running Shakespearean production in Broadway history), singer (world famous for his vibrant baritone renditions of Negro spirituals), orator, cultural scholar and linguist (fluent in at least 15 languages), Robeson was an outspoken crusader for racial equality and social justice. Revered by the left, reviled by the right, he was blacklisted during the McCarthy Era and beyond, harassed by the FBI, his passport revoked for eight years, his career stifled. He died broken and almost forgotten, his life a testament to lost opportunities in 20th-century American history. His namesake tomato developed almost a cult following among seed savers. The **maroon-brick** 6–12 oz oblate often bi-lobed fruits **with dark green shoulders** come closest in flavor to Black Krim, but claim their own distinctive sweet smoky taste. A sandwich tomato with a tang, an extraordinary tomato for an extraordinary man. Some tendency to split. "Does great on my farm in MS," reports Will Reed of Native Son Farm in Tupelo. ①

4060 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $24.00*

Black Krim - Organic (80 days) Ind. Don't wait too long to harvest this delicate heirloom tomato. At half green and still firm they are already dead ripe and perfectly delicious. If you wait till they are fully purple, you will not be able to get them from garden to table intact (to say nothing of market) and they will disintegrate like a hunk of road-kill. Krims are strikingly **iridescent purple** on the outside, usually **with dark green-black shoulders** and noticeable catfacing. Interiors are part black, too, with an unusual juicy yet meaty taste and texture, described as having "…a smoky flavor like a good single malt scotch." Fruits average 12–18 oz. Krim hails from Krymsk on the Black Sea in Russia. ①

4061 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

Golden Jubilee - Organic (80 days) Ind. Amy Goldman describes its flavor as "sprightly" and says it was a favorite of Ben Quisenberry of Big Tomato Gardens in Syracuse, OH, who offered it under the name Golden Sunray. The best medium-sized open-pollinated **orange** tomato, Jubilee ripens smooth-textured sweet mild meaty 8 oz globes. Pruning will produce larger fruits. Nikos discovered Jubilee at a Waldo County Extension taste test at Unity College. She brought one in and it was superb, almost on a par with Goldie both for texture and flavor. Jubilee is smaller than Goldie and less prone to blemish. A cross between Tangerine and Rutgers, it won an AAS for Burpee in 1943. Resistant to ASC. ①

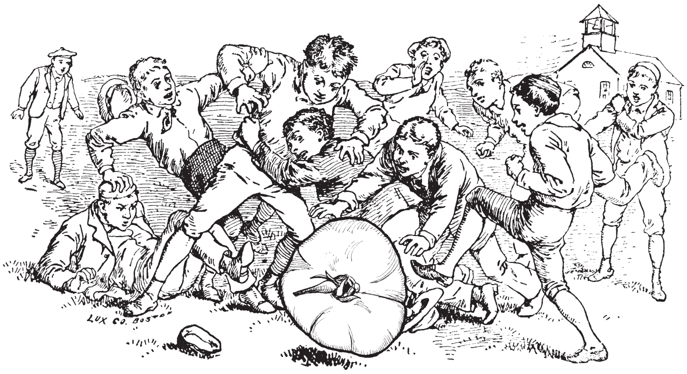
4065 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

Yellow Brandywine - Organic (82 days) Ind. with potato-leaf foliage. Growing Yellow Brandywine can be maddening. When it's good, it's very very good, but when it's bad it's awful. All strains (and there are several) develop irregularly-shaped fruits in extreme weather fluctuations. Good appearance correlates closely with good eating quality. Compost the weird-looking fruits; enjoy the good ones! Large slightly ribbed 1 lb fruits with an identifiable ring scar at the blossom end are often remarkably smooth, with a creamy texture and rich complex tangy flavor. Not the highest yielding. In the running for best **golden** tomato, but by no means a shoo-in. ②

4076 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $5.00*
***D**: 2g, $8.00* ***E**: 10g, $24.00*

Pineapple - Organic (85 days) Ind. Garden author Michelle Owen says, "I roast…these exceptionally sweet **red-streaked yellow** tomatoes…in a hot oven, then sauté with ridiculous amounts of garlic, rosemary and extra virgin olive oil and throw over pasta. Before I face the firing squad, I will ask for this as my last meal." With its silky smooth texture and complex fruity taste, Pineapple may be the best striped tomato. Typically grows huge fruits in excess of 1 lb that get a little funky cosmetically. Fruits hold tight to stems so bring scissors to your harvest. Cut in half, it looks like the interior of a pineapple except with yellow and red marbling. It doesn't taste like a pineapple, though, nor like a typical red tomato, either. Its unique mild low-acid fruity sweetness needs a fruit name all its own. Originally from Kentucky, but our seed stock came from Martha Gottlieb of Common Ground Fair Exhibition Hall fame. ①

4077 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $26.00*



Mary Reynolds' - ECO (85 days) Ind. In last year's taste trials the rich **pumpkin-orange** color of these 1 lb beefsteaks were a marvel on the 16' table of plated tomato slices. The flavor did not disappoint: full-bodied fruitiness with complex notes and a floral scent. It doesn't get any better than that. Mary Reynolds selected it in Virginia for years from a now-forgotten heirloom; her name has become synonymous with the fruits of her labor. Enjoy it in a colorful "Appalachian trio" with Cherokee Purple and Aunt Ruby's German Green. ① **NEW!**

4078 ***A**: 0.2g, $2.80* ***B**: 0.4g, $4.50* ***C**: 1g, $8.00*
***D**: 2g, $12.00* ***E**: 10g, $35.00*

Aunt Ruby's German Green - Organic (85 days) Ind. "The biggest surprise I've ever experienced in tomatoes," said the late Chuck Wyatt, vintage tomato collector. Until you try it, you won't believe a **green** tomato could be this good. I rate it second only to Brandywine for flavor and it is on just about everyone's top-ten list. Oblate 12–16 oz fruits **blush lightly yellow** and develop an amber-pink tinge on the blossom end when ripe. Don't allow them to get too soft before picking. The green flesh of this beefsteak is faintly marbled with pink. Flavor sweet and tart, rich and spicy. The central large tomatoes are the best. Flavor deteriorates when cold weather sets in. Created a sensation at a staff taste test where it was rated "good" or "excellent" by all who tried it. Not just the best green eating tomato, it also makes a delicious basis for a green salsa. Originally from Ruby Arnold's German immigrant grandfather, introduced in the 1993 Seed Savers Exchange Yearbook by Bill Minkey of Darien, WI. Nominated to Slow Food's Ark of Taste. ③

4080 ***A**: 0.2g, $2.10* ***B**: 0.4g, $3.30* ***C**: 1g, $4.50*
***D**: 2g, $7.00*

Weaver's Black Brandywine (85 days) Ind. Potato-leafed. Also known as True Black Brandywine. Not the only attempt at pairing smoky depth of "black" tomatoes with the full tart and sweet balance of Pink Brandywine, but Weaver's Black could be the oldest and is likely the best flavored. Bred by Dr. Harold Martin in late 1920s in Pennsylvania, its irregular flattened large heirloom beefsteak shape looks **coal-dusted over crimson**, with shadows of green, purple and brown. Winner of our 2016 taste trial of dusky types, Weaver's flavor intensity of peaty whiskey and rich tomato is not for the faint of heart, and everyone who tries it will have an opinion. Given safe harbor by William Woys Weaver's Roughwood Seed Collection since being kept by his grandfather. The usual delicate handling and quick consumption rules of cherished heirloom tomatoes apply. ②

4086 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $24.00*

Lillian's Yellow Heirloom - Organic (88 days) Ind. Lillian's may be a little late, not coming on until September, but is worth waiting for. Superb creamy consistency, meaty flesh and complex of rich deep flavors make this the best-tasting **clear** tomato, a perfect balance of engaging sweetness and intriguing citrus quality in every 1 lb fruit. Won't win any beauty contests, being bilobed, oblate and a bit lopsided, but will win taste contests. One bite into one of these beefsteaks and you'll forget about its superficial shortcomings. Carolyn Male rates it among her top 100, we rate it in the top 10. Fruit in clusters of 2 or 3. Prone to catfacing under stressful weather condition. From Lillian Bruce, Manchester, TN. ① **BACK!**

4091 ***A**: 0.2g, $2.80* ***B**: 0.4g, $4.50* ***C**: 1g, $8.00*
***D**: 2g, $12.00* ***E**: 10g, $36.00*

Ruby Gold (90 days) Ind. As aesthetically appealing as it is delicious, Ruby boasts prolific beautiful huge **red-streaked yellow** fruits with marbled interior flesh, meaty with superb mild sweet flavor, smooth melting texture and not a bit of acidity. Introduced by John Lewis Childs of Floral Park, NY, in 1921. Rediscovered by tomato aficionado Ben Quisenberry in Bob's Market in Mason, WV, in 1967. Quisenberry offered it under three different names, Early Sunrise, then Gold Medal and finally Ruby Gold, calling it "the sweetest tomato you ever tasted." Gigantic 1–3 lb fruits with gigantic flavor. Tomato cognoscenti rate it one of the best. Fruits slightly flattened with red spot on the blossom end, seldom cosmetically perfect, prone to radial cracking. ①

4097 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

Open-pollinated STUFFING TOMATO

Schimmeig Striped Hollow (85 days) *With heavy hearts we are finally dropping this hollow stuffing variety because of persistently hollow sales.*

Hybrid RED & PINK SLICERS

300-500 seeds/g.

Premio (60 days) Ind. A primo early cluster tomato and a centerpiece for my new tomato strategy sans hoophouse: to depend on the new generation of flavorful cluster hybrids such as Premio and **4225** Mountain Magic (p. 75) for September production after rains and blights have beaten down my favored heirlooms. Delicious Premio gets that job done—between Aug. 31 and Sept. 14, I harvested 97 of its perfectly round red uniform thick-skinned almost 4 oz fruits from just two plants. These ripen 4–8 to a cluster, firm but juicy and refreshing with nice texture, sweetness and flavor and awesome holding quality in the field. Cascades of them keep coming and coming. ⑤

4211 ***A**: 20 seeds, $3.80* ***B**: 40 seeds, $6.50*
***C**: 100 seeds, $12.00* ***D**: 500 seeds, $46.00*

Jet Star (72 days) Compact Ind. As hybrids go, Jet Star has been around for a long time. The 1979 Harris catalog reported, “Our Jet Star met with as great a reception as any introduction we ever offered.” Almost 30 years later it remained their best-selling hybrid tomato. In a test of 16 commercial varieties grown in high tunnels at Highmoor Farm, it had the highest yield of total marketable and premium-quality fruit. The University of Maine Food Lab also rated it the top greenhouse tomato. Year after year it was the best early full-sized red tomato in our trials, ripening prolific quantities of cosmetically perfect 7–8 oz globes with outstanding flavor. The smooth firm fruits almost never scar or crack and have excellent interior and exterior coloration. Resistant to F1 and V. ⑤

4233 ***A**: 20 seeds, $2.80*
***B**: 40 seeds, $4.50*
***C**: 100 seeds, $9.00*
***D**: 500 seeds, $30.00*
***E**: 1,000 seeds, $48.00*

Luci 2103 - Organic (73 days) Ind. Replacing Buffalo in our greenhouses, uniform productive 6 oz Luci was the first of its class to ripen in our trial, setting about 10 clusters, each with 3–4 fruits. We loved Luci for its earliness, uniformity, high yields and disease resistance. Red fruits are flavorful, mild, juicy, a little mealy, rarely crack, never have green shoulders. Beautiful sturdy vigorous healthy plants show good leaf cover. ③

4238 ***A**: 0.1g, $3.20* ***B**: 0.2g, $6.00*
***C**: 0.4g, $9.00* ***D**: 1g, $16.00*

Arbason - Organic (76 days) Ind. While first harvest is a few days after Jet Star, we found this reliable organic hybrid’s steady and prolonged total yield matched that of J-Star in both the high tunnel and the open field. As the outdoor picking season for many varieties waned, Arbason continued to produce good-tasting consistent 7–9 oz red fruits. Likewise in the high tunnel, while the ripening of many varieties slows to a crawl once leaf mold establishes, Arbason kept the harvest coming even with moderate disease. University trials in PA, NH and ME also showed Arbason with high yields and high percentages of marketable fruit. With no cracks or blemishes, these dense red globes stand up to the sorting and after-ripening demands of market farmers. We find flavor continues to improve 7–10 days off the vine. Pruning clusters to 4 or so will keep fruits large. Resists F0-1,V, TMV. ④

4239 ***A**: 10 seeds, $6.00* ***B**: 20 seeds, $8.50*
***C**: 40 seeds, $16.00* ***D**: 100 seeds, $30.00*
***E**: 500 seeds, $140.00*

Momotaro (78 days) Vigorous Ind. This pink gem, a study in delicacy and nuanced flavor, deservedly the dominant fresh-market tomato in Japan, came to the States where it was re-named Tough Boy. Crack tolerant though anything but tough, these tennis ball–sized round 4–7 oz fruits borne 6–7 to a cluster are noteworthy for their well-balanced, intensely rich and sweet, slightly acidic flavor. CR grew and enjoyed them in 2012. Independently, Heron and his crew picked them out as superior in their 2016 trial, even though they aren’t way productive. This hybrid truly tastes as good as any mid-sized open-pollinated heirloom. V, F and N tolerant. ⑤

4241 ***A**: 10 seeds, $6.00* ***B**: 20 seeds, $11.00*
***C**: 40 seeds, $20.00* ***D**: 100 seeds, $46.00*

Potassium Nitrate (KNO$_3$) Also known as saltpeter, used to soften the coat of many seeds to expedite germination. Recommended for brassicas, eggplant, peppers, tomatoes, basil, endive, radicchio, and most flower seed. Comes in fine granular form. Dilute ½ tsp in 1 qt water. Use as a pre-soak for seed or to water seedling flats. 10g packet contains 2 tsp. *Note:* Not allowed for certified-organic use.

3999 ***A**: 10g, $2.00*

Open-pollinated PASTE TOMATOES

300-500 seeds/g.

Mr. Fumarole - Organic (65 days) Ind. This large elongated 3–6" pinkish plum tomato was a winner in our 2007 paste test. Comments included “top of the line, rich, complex,” “has a crispy brown flavor that lingers,” “very flavorful, sweet meaty good,” “nice blend of flavors, tart but full tomato flavor,” and “sweet, somewhat bland but haunting. I would try it again.” Though tough-skinned, can also be eaten out of hand where its tart sweetness pleases. Fair yields. Did not get blossom-end rot, even in 2011 when that disorder was prevalent in other paste varieties. ❧2009. ①

4123 ***A**: 0.2g, $2.10* ***B**: 0.4g, $3.20* ***C**: 1g, $4.60*
***D**: 2g, $7.60* ***E**: 10g, $22.00*

Heinz 2653 - Organic (68 days) Det. An early red plum type that often ripens all its 2½–3 oz fruits before frost. Firm fruits for cooking, on compact rather homely plants. “The perfect canning tomatoes for a short season huge late blight pressure area. Small, loaded plants, fruits stayed clean even after all the leaves were gone. Most ripened at once so I could collect a huge canner load from a small number of plants,” reported the Wolperts from WV. This just in from our legal department: *Our seed originated from plants grown from Heinz 2653 seed; there’s no affiliation or association with Kraft Heinz Food Co*. Resists F and V. ①

4125 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

Grandma Mary’s (68 days) Ind. Crop failure. *Not available in 2020*.

Bellstar - Organic (74 days) Det. Bred at Smithfield Experiment Farm in Ontario and introduced in 1981. Bears red 4 oz round paste tomatoes much larger than most others of this type. Delicious flavor is also good in salads. Ripening is spread over a long season. ①

4133 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $7.00*
***D**: 2g, $9.00* ***E**: 10g, $30.00*

Opalka - Organic (82 days) Ind. Its third time in our taste test proved the charm for Opalka. Our tasters have commented, “an oasis of flavor in a desert of tomato hell,” “a pleasing texture and good aftertaste lingers,” “round and mellow flavor…full-bodied.” Expect copious yields of 3x5" massive solid bull’s horn–shaped red fruits with dry texture and few seeds. Also dries well. While some tomatoes falter during hot dry spells, Opalka produces consistently. The crinkly foliage is normal and not an indication of plant disease. Polish heirloom brought by the Opalka family to Amsterdam, NY, around 1900. A shy seed producer, it consistently gets dropped for that reason by commercial enterprises, so we’re happy to be able to offer it, grown by our very own Roberta Bailey. ①

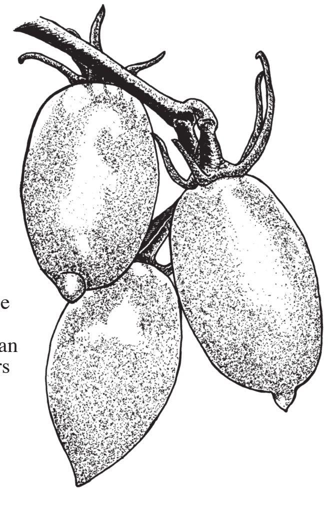
4135 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $27.00*

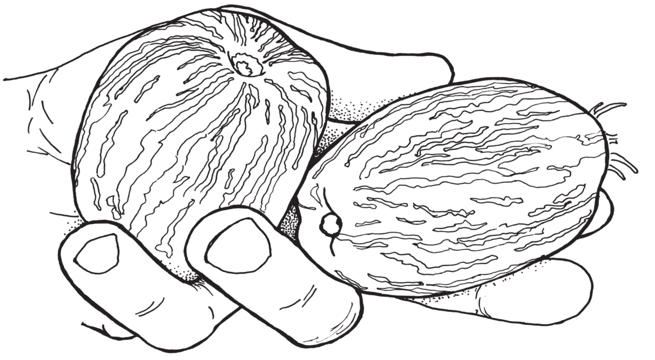
Vilms - ECO (82 days) Ind. What struck me first were the plants: so green, so healthy, without the frilly fern-leaf foliage of most other paste types, with short but strong stocky stems. I counted set after perfect set of small plum pastes. First harvest was mid-August with 20 lbs of blemish-free blood-red nippled 2 oz plums from 30 plants. Then 40 lbs the next week. Diseases came, Vilms persevered. Another 40-lb week, and another. While other paste varieties went under from blights or rotted, Vilms sweetened merrily in their 20-lb boxes for up to three weeks with few losses. Co-workers who devoured the solid but moist two- or three-bite plums found them good. Whether in salads or sandwiches all were picture-perfect and tasty. When Vilms finally succumbed to weather and fungus, I thrice more gleaned after-ripened fruits from the leafless remains. A multi-purpose, easy-to-grow beauty. ①

4136 ***A**: 0.2g, $2.40* ***B**: 0.4g, $3.60* ***C**: 1g, $6.00*
***D**: 2g, $8.00* ***E**: 10g, $25.00*

Orange Banana - Organic (85 days) Ind. I never would have believed that the best tomato sauce comes from an orange tomato. But the proof is in the eating and Orange Banana has been a perennial winner of our annual paste taste-offs. Comments from tasters include, “the best flavor and sweetness yet, wow!” and “gourmet candlelight.” No wonder Banana has become a staple of David Shipman’s famous tomato sauces. Its sprightly sweet flavor, reminiscent of Sun Gold but with more depth and diverse tones, makes an ambrosial sauce by itself and adds a vivid fruity complexity to any sauce with other tomato varieties. Erica Myers-Russo in CT grows it exclusively for drying. She claims it “makes the sweetest dried tomatoes ever.” Attractive cylindrical orange fruits 3–4" long average 4–5 oz. Susceptible to blossom-end rot. Originally offered by Moscow seedswoman Marina Danilenko in the 1996 Seed Savers Yearbook. ①

4137 ***A**: 0.2g, $2.40*
***B**: 0.4g, $3.60*
***C**: 1g, $6.00*
***D**: 2g, $8.00*
***E**: 10g, $26.00*



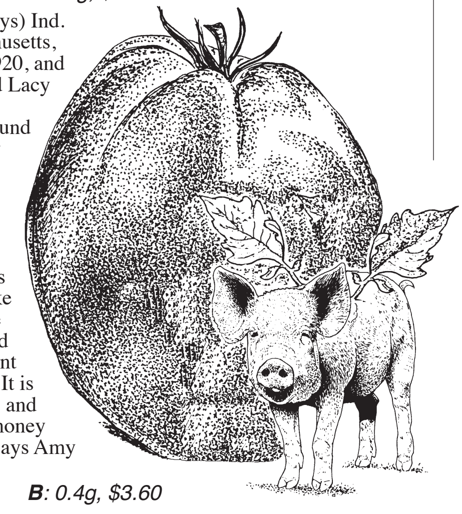


Speckled Roman - Organic (85 days) Ind. “A knock-out at market last year. Eye-catching with yellow-striped scarlet skins. My customers bought them singly for fresh eating and in baskets for cooking into sweet sauces,” relates Elizabeth Bangley of Hawk’s Hill Farm in Georgetown, PA. John Swensen’s psychedelic-looking creation ranked near the top in our 2005 sauce test for its rich tomatoey sweetness and good texture. Roman’s red cylindrical fruits are covered with orange-yellow striations, something like an Amish Paste with stripes from an Orange Banana. The actual parents are Antique Roman and Banana Legs, and the fruits have the distinctive nipple of the latter. Plants bear an abundance of meaty 4–5 oz fruits. Susceptible to disease in cool wet seasons. ②

4138 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $24.00*

Amish Paste - Organic (85 days) Ind. Always among the most popular items in the Seed Savers Exchange. Listed members’ comments tell all: “large red meaty fruit,” “wonderful paste variety,” “great flavor for cooking, canning or fresh eating,” “the standard by which I judge canning tomatoes,” “huge production,” “great for sauces, salsa, canning.” Strong producer of oxheart fruits up to 8 oz with thick bright red flesh. Larger and better than Roma. Flavor has been consistently good even in poor tomato years. Wisconsin heirloom from Amish farmers in the 1870s, first surfaced in the 1987 SSE Yearbook. We have observed some inherent variation, based on how this variety responds to its environment. Needs room and good nutrition to set mostly nippled fruits. Crowding, shading or stress reduces fruit size and nippling. Boarded Slow Food’s Ark of Taste. ①

4140 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $24.00*



Hog Heart - Organic (86 days) Ind. Brought from Italy to Massachusetts, probably between 1910 and 1920, and then by Susan Eastman and Ed Lacy of Gray, ME, to the Exhibition Hall at the 1988 Common Ground Fair, Hog Heart has won many admirers. So-named because it sometimes produces large red heart-shaped double fruits. Elisabeth Benjamin grew a triple in 2013 that weighed 3 lb 7 oz! More often, though, its 6–8 oz tomatoes are shaped like banana peppers. A meaty paste tomato noted for its sparse seed cavity, good solids and excellent flavor fresh, canned or frozen. It is late for extreme northern areas and some fruits catface. “For my money the best paste tomato going,” says Amy LeBlanc. ❦1999. ①

4141 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60*

Blue Beech - ECO (90 days) Ind. *Crop failure—not available in 2020.*

Hybrid PASTE TOMATO

~350 seeds/g.

Plum Regal (75 days) Det. Fedco staff whipped up a day-long paste-taste last year, saucing 20+ varieties. Plum Regal topped the hybrids and had high marks even compared to some excellent heirlooms. Its deep red sauce was smooth, meaty, with paste-y rich full flavor and a nice acid balance. No bitter or metallic hints, and also did not err into saccharine-sweet tones. Adding to the overall package, Regal is late-blight resistant, and moderately resistant to early blight. Even on a determinate plant, the ability to withstand disease pressure really shows up in a high yield. This variety has been making a name for itself among home canners and sauce-makers: you know you will get enough tomatoes and the end results will be delicious. High resistance to LB, F, V, TSWV; intermediate resistance to EB. ④

4290 ***A****: 10 seeds, $3.30* ***B****: 20 seeds, $5.50*
C*: 40 seeds, $10.00* ***D****: 100 seeds, $19.00*
E*: 500 seeds, $72.00*

Pasta (84 days) *Dropped. Plum Regal has more blight resistance.*

Open-pollinated CHERRY, GRAPE & SALAD TOMATOES

300-750 seeds/g.

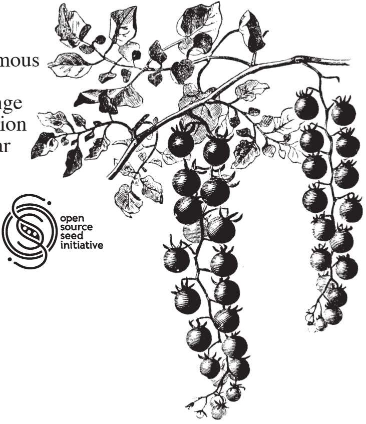
Honeydrop - ECO (62 days) Rampant Ind. From a selection of F-1 Sunsugar, Rachel and Tevis Robertson-Goldberg of Crabapple Farm in Chesterfield, MA, developed Honeydrop and sent us the original seed, with their blessing to keep the production going. Honeydrop’s sweet juicy fruity **honey-colored** treats taste almost like white grapes. They are much less prone to cracking in wet weather than **4250** Sun Gold (p. 75). Seeking to add another light-colored cherry to our selection, we trialed it against Blondkopchen, Dr. Carolyn, Isis Candy, Lemondrop and Weissbehart. It bested them all by such a wide margin in earliness, sweetness and complexity that we declined to add any of those others. Parthenocarpic. **OSSI Breeder Royalties.** ①

open source seed initiative

4106 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $25.00*

Gardener’s Sweetheart - Organic (62 days) Ind. These Sweethearts, borne on trusses, each with 6–8 **bright red** miniature heart-shaped fruits with a nipple on the end, came from a chance cross in master-seed-saver Will Bonsall’s greenhouse. We used to think that a tough-skinned tomato couldn’t harbor a deep rich flavor inside. Because they will keep seemingly forever on the vine, the trick is to wait to harvest until they are deep red—they’ll keep getting sweeter and reach full flavor. Only then are they truly satisfying. This mating of juicy, flavorful but crack-prone **4109** Gardener’s Delight (p. 74) with determinate paste tomato Royal Chico (good solids, dry pulpy flesh, tough skin and indifferent flavor) combines most of Delight’s richness with some of Chico’s toughness. Firm, hard fruits average 15–16g and don’t fall apart or crack under any circumstances. Bring them inside, they will likely keep for weeks. Ideal in shish kabob, they probably would make a superb tomato sauce if one has the patience. **Breeder Royalties** ① **BACK!**

4103 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $25.00*

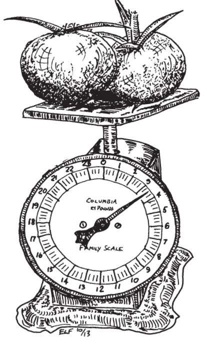


Be My Baby - Organic (65 days) Ind. This productive cherry is the ongoing result of a cross of three famous tomatoes: an heirloom potato-leaf beefsteak and two cherries, one orange and one red. The crossing and selection process for a **red cherry** with regular tomato foliage began in 1997 and is now complete. The grape tomato in its background lends a rich sweet flavor somewhat akin to that of Sweet Baby Girl, which it replaced. Bred by Relentless. ❦2007 **OSSI, Breeder Royalties.** ①

open source seed initiative

4108 ***A****: 0.2g, $2.40*
B*: 0.4g, $3.60*
C*: 1g, $6.00*
D*: 2g, $8.00*
E*: 10g, $25.00*

Aosta Valley - Organic (65 days) Ind. From the mountainous region of NW Italy comes a short-season tomato with exceptionally rich flavor. Prolific clusters of 10–12 small (1 1/2") **shiny red** tomatoes hold on the vine and can be picked all at once. The five-sided fruits have thick walls and tiny seeds. Our grower continues to select for consistent shape. Excellent fresh, stewed or added to sauce. It placed in the top 3 of our of 25 paste tomatoes in our latest stewed-tomato tasting. Thanks to Ray Carbone of Steuben, ME, for sharing the seed he brought back from his mountain trek. The Aosta region is famous for its Fontina cheese production. And now for its early superbly flavored tomatoes. Blight resistant. ①



4031 ***A****: 0.2g, $3.00*
B*: 0.4g, $5.00*
C*: 1g, $7.00*
D*: 2g, $10.00*
E*: 10g, $34.00*

Copper Beauty - Organic (65 days) Ind. This 2" long and 1" wide dark striped **grape-plum** with a pointed tip looks like an ornament sprung from a sculptor’s imagination, with **light mahogany streaks over a bronze base**. Copper Beauty’s stunning streaked skin is paired with a dark red interior flesh of sweet flavor oscillating with fruity tartness in a firm texture. The productive plant will give you plenty of opportunity to marvel at its taste and beauty. ②

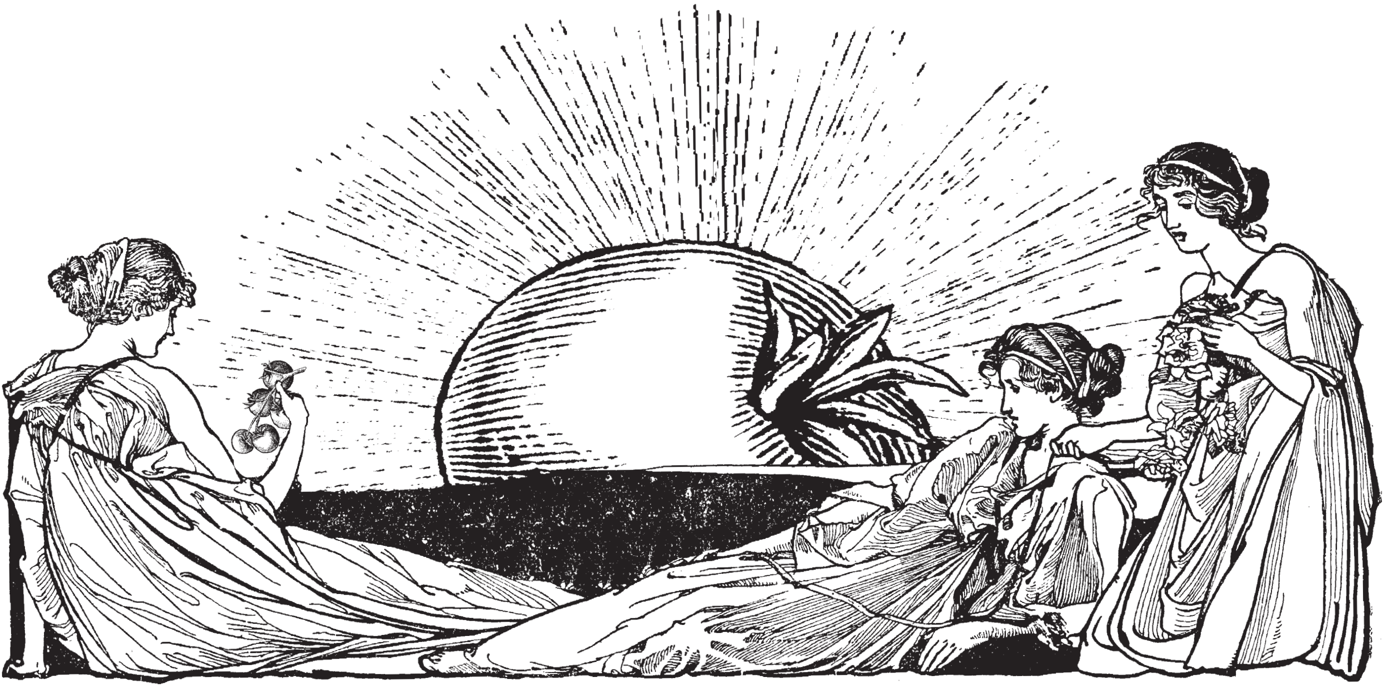
4033 ***A****: 10 seeds, $2.20*
B*: 20 seeds, $3.60*
C*: 40 seeds, $6.00*
D*: 100 seeds, $12.00*
E*: 500 seeds, $40.00*

Weight equivalents

1 gram = .035 oz
3 grams = .106 oz
6 grams = .212 oz
24 grams = .851 oz
120 grams = 4.24 oz

1/16 oz = 1.77 g
1/8 oz = 3.55 g
1/4 oz = 7.09 g
1/2 oz = 14.2 g
1 oz = 28.4 g
4 oz = 113.5 g
1# = 453.6 g
2.2# = 1000 g

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.



Tropical Sunset - Organic (65 days) Ind. The trial gardens tended by Anna Goff in Deer Isle, ME, were often bathed in coastal sunset as we munched and compared cherry tomatoes; that's about as far south as our northern-tier R&D takes us! But the radiant thoughts conjured by this variety name mirror the crazy beach-party color combo of **orange and rosy red streaks** this true mini bicolor sports. Imagine your favorite bicolor beefsteak such as Gold Medal, Pineapple, or Striped German shrunk to a $1\frac{1}{4}$" tender-skinned round **cherry** with fruity sweetness and mild acid balance. At markets, the visual pull of a quart of mixed cherries is inescapable, and the flavor keeps everyone snacking. ②

4035 ***A****: 10 seeds, $2.20* ***B****: 20 seeds, $3.60*
C*: 40 seeds, $6.00* ***D****: 100 seeds, $12.00*
E*: 500 seeds, $40.00*

Gardener's Delight (68 days) Ind. Also known as Sugar Lump, and of German origin, but not an heirloom as we once believed. Introduced by Ernst Benary in 1950-51. A parent of the famous hybrid Sweet 100. Produces the kind of rich sweet **deep red** 1+" **cherries** that you will want to pop into your mouth in profusion while you bask in the garden sunshine. The large plants need staking and will bear till frost. The fruits taste so good that I overlook their annoying tendency to crack. ②

4109 ***A****: 0.2g, $2.10* ***B****: 0.4g, $3.00* ***C****: 1g, $4.00*
D*: 2g, $5.00* ***E****: 10g, $18.00*

Sweet Aperitif (70 days) Ind. These dime-sized **red** flavor heroes entranced our tasting staff: Roberta said Aperitif was "so sweet, keeps coming as I chew." Carol added, "Wow, they look like jewels and taste amazingly sweet." Nikos guessed the cocktail crowd would like to experiment with them: indeed, the rich juice softly disperses through the mouth carrying a sweet full tomato essence. Bright red $\frac{7}{8}$" Aperitif is sized like a huge currant or very **small cherry**. This diminutive delight gave twice as vigorous ongoing production and taste wallop as many other standard red cherries in our 2018 trial. ②

4111 ***A****: 10 seeds, $2.20* ***B****: 20 seeds, $3.40*
C*: 40 seeds, $5.00* ***D****: 100 seeds, $10.00*
E*: 500 seeds, $36.00*

Flaming Burst (70 days) Ind. Tomato breeder Tom Wagner is a true auteur, whose depth of skill and imagination amaze us. Millions of gardeners worldwide know his **4057** Green Zebra (p. 70), but his efforts have developed countless other breathtaking visual and flavor combinations. Flaming Burst is a "small" departure from the streaks and zigs that ornament many of his creations: $1\frac{1}{4}$ x 1" **golden mini pears** cluster on a steadily productive plant. Meaty but not dense, juicy and sweet but tangy not insipid, delivering the correct culinary combination that so many yellow cherries and pears lack. With Flaming Burst, Wagner shows again his mastery of color and shape, also his talent for nuance. ②

4112 ***A****: 10 seeds, $2.20* ***B****: 20 seeds, $3.40*
C*: 40 seeds, $5.00* ***D****: 100 seeds, $10.00*
E*: 500 seeds, $36.00*

> Thanks FEDCO for an amazing catalog filled with quality seeds at a fair price. I get almost a dozen other catalogs. Greed is now their modus operandi. Glad FEDCO is for us working class folks!!!
> – Paul Flores, Pensacola, FL

Pocket Star - ECO (74 days) Ind. A few years ago after giving one of my Grow-for-Fedco talks at Common Ground Fair, a young farmer newly transplanted to the area took away one of the grower applications. The next year he showed up at the Fair with some fruit in his pocket: an attractive **green cherry** tomato **with little flecks of gold** around its crown that we took back to the warehouse taste kitchen to start the work week. It's rare when our tasters all agree but this was just such a rarity: "nice acidity with a sweet balance that moves into complex full tomato flavor. Meaty. Yum." We were instant fans. He says it showed up amongst a crop of not-green tomatoes, has come true-to-type and produces an abundance of 1" round fruits. He named it for the sci-fi novel *Stars In My Pocket Like Grains of Sand*. We think this stellar cherry tomato is sure to please. Distinguishing ripe green fruit is easy: fruit begins to show a slight golden yellow at the base when ready for harvest. The grower is selecting for more ease of snapping the stem in harvesting. ①

4113 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $26.00*

Jaune de Flammé (75 days) *Dropped for slow sales.*

Black Cherry - Organic (75 days) Ind. **Two-bite cherries** (avg $\frac{1}{2}$–1 oz) with the **dusky color** and complex flavor typical of the best black tomatoes, juicy and delicious. Somewhat late for a cherry tomato, fruit ripens slowly and individually until frost, but worth the wait. Examine each plant closely at picking time: the dark-hued cherries are easy to lose in the foliage. Best flavor if left to ripen on the vine till nice and dark. Seems to tolerate the usual tomato diseases but fruits will crack readily in rainy weather. Combine with **4250** Sun Gold (next page) and any bright red cherry for a lovely display. Brix 7. Developed by Vince Sapp of Tomato Growers Supply and released 2003. ②

4115 ***A****: 0.2g, $2.20* ***B****: 0.4g, $3.40* ***C****: 1g, $4.80*
D*: 2g, $7.00* ***E****: 10g, $19.00*

Principe Borghese - Organic (75 days) Vigorous Det. An Italian heirloom with excellent flavor. Used for sun-dried tomatoes as it has few seeds and little juice. In our humid climate, we require a solar dryer or a 100° oven to dry the fruits successfully. Bears **small red** fruits in prolific clusters over a long season. CSA grower Jill Agnew lauds them for holding their perfect shape so well without cracking. ①

4118 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $25.00*

Peacevine - Organic (78 days) Rampant Ind. Selected by Peace Seeds from Sweet 100 **cherry** tomato and almost identical in fruit size and growth habit. Bears gazillions of sweet clusters each with 8 or so 1" **red** fruits of "wonderful sweet/tart rich flavor." Has the currant tomato in its ancestry. Very high in vitamin C and GABA, a sedating neurotransmitter. That may be why Alan Kapuler named it Peacevine. **Breeder Royalties.** ①

4119 ***A****: 0.2g, $2.40* ***B****: 0.4g, $3.60* ***C****: 1g, $6.00*
D*: 2g, $8.00* ***E****: 10g, $25.00*

Green Doctors Frosted (81 days) *Dropped. Sales were frosty.*

Fargo Yellow Pear - Organic (82 days) Vigorous Det. Introduced 1934 by Oscar Will & Co. of Bismarck, ND, yet another of famous breeder AF Yaeger's creations. He crossed Bison with Yellow Pear for earliness and higher yields. Each plant produces about three dozen sweet tasty 1 oz **yellow** fruits. About **twice the size of regular pear tomatoes**, the meaty morsels are crack resistant. ①

4122 ***A****: 0.2g, $2.00* ***B****: 0.4g, $3.20* ***C****: 1g, $4.60*
D*: 2g, $7.60* ***E****: 10g, $22.00*

Hybrid CHERRY, GRAPE & SALAD TOMATOES

350-600 seeds/g.

Sun Gold (57 days) Ind. To quote one customer, “Without these little babies, there’s no summer.” A perfect combination of deep sweetness with a hint of acid tartness, so good that for almost a decade it took away our incentive to trial **cherry** tomatoes because no others could match it. In a field replete with choices, we are drawn to Sun Gold like candy. What is its elusive alluring tang? Quart after quart grace the table, yet we rarely reach surfeit July through September. Small fruits averaging 8.2g, borne in prolific clusters, ripen very early to a rich **apricot color** and keep producing till frost. Very prone to split so pick early when rains are forecast. Brix 8. Resists F1, TMV. ⑤

4250 ***A***: *20 seeds, $2.70* ***B***: *40 seeds, $4.20*
C: *100 seeds, $9.40* ***D***: *500 seeds, $32.00*
E: *1,000 seeds, $60.00*

Esterina - Organic (60 days) Ind. Since a full medley of colors is so important now in market displays, we think there is a niche for a true bright **yellow cherry**. Among its many attributes, Esterina is large for a cherry, productive over a long period, disease resistant, crack-free and borne on large clusters. Though the flavor will never displace Sun Gold or Sweet Treats from my top five, it rates a solid good: a clean juicy sweetness that may bring you back for more. For a true yellow (golden or orange ones not allowed), that’s no small compliment! Resists V and TMV. ③

4252 ***A***: *10 seeds, $3.80* ***B***: *20 seeds, $7.00*
C: *40 seeds, $12.00* ***D***: *100 seeds, $22.00*
E: *500 seeds, $52.00*

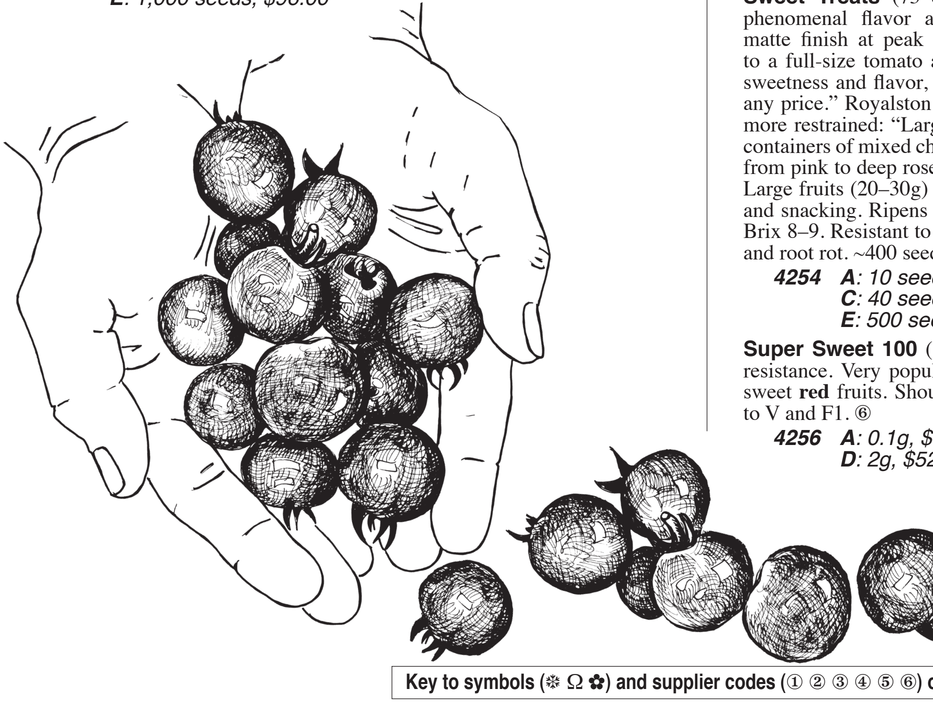
Jasper (60 days) *Dropped. Try **4265** Cherry Bomb.*

Juliet (60 days) Ind. There will be no lack of Romeos who want to nibble on these and no lack of the delectable little plum-shaped fruits for them to adore. They come in clusters everywhere, each truss bearing 6–8 of the 1–2 oz **grapes** for an astonishing total of 50–80 glossy **red** fruits per plant. With an engaging sweetness, they make good stewing tomatoes, excellent salad tomatoes, and, despite their juiciness, a tangy sauce with a diverse complex richness and full sweet tomato flavor. Lynn Sagalyn of Philadelphia reports that “Juliet is my favorite tomato for drying. Cut them in half, flip out the seeds and dehydrate…They are like tomato ‘raisins’—chewy and sweet to just eat, put on pizza, or add some red to a winter stir-fry.” Scout Proft of East Dorset, VT, says, “Entertained by your description, but the plain truth is they are the highest yielding most versatile tomato out there—both for greenhouse and field use in all culinary ways. Period.” This 1999 AAS winner is firm enough to hold on the vines for up to two weeks, crack resistant, tolerant to EB and LB, and fairly invulnerable to insect or slug damage. ③

4264 ***A***: *20 seeds, $3.40* ***B***: *40 seeds, $6.00*
C: *100 seeds, $7.50* ***D***: *500 seeds, $25.00*
E: *1000 seeds, $44.00*

Honey Bunch (62 days) Ind. I’ve never been fond of grape tomatoes, but I’ll make an exception for this honey bunch. No complexity here, just a luscious over-the-top sweetness with a honeyed nuance that could be habit-forming. For maximum enjoyment, wait until they ripen fully to a bright **red** in the field. That’s easy because they are very crack-resistant and seem to hold field quality forever. Our trialers loved the texture of these bright red 8–14g 1x1$^{1}/_{2}$" fruits, **the size of cherries, but the shape of grapes**. “Like small Juliets.” Brix 9. High-yielding vigorous vines are tolerate EB. ③

4266 ***A***: *20 seeds, $4.00* ***B***: *40 seeds, $7.00*
C: *100 seeds, $14.00* ***D***: *500 seeds, $50.00*
E: *1,000 seeds, $96.00*



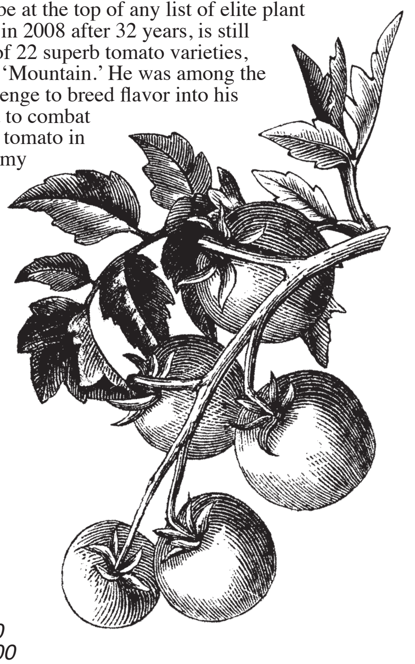
Cherry Bomb - Organic (64 days) Ind. Spray-wary gardeners everywhere can celebrate! Johnny’s Selected Seeds breeder Emily Haga developed this vigorous hybrid **cherry** tomato not only with explosive flavor, but also added bomb-proof resistance against late blight lineage US 23. The glossy bright **crimson** cherry/grape cross bursts with full tomato zing balanced against a meaty firm texture. Fedco staffers Roberta Bailey and Heron Breen swear by Cherry Bomb for superb eating and reliable non-stop production, making sure we gave it a well-deserved place in our catalog. Growers take note: the oval slightly heart shape and distinct long sepals will give unique visual appeal at the farmers’ market. Between the flavor and the look, everyone will want more! LB resistant. ③

4265 ***A***: *10 seeds, $6.30* ***B***: *20 seeds, $8.40*
C: *40 seeds, $16.00* ***D***: *100 seeds, $30.00*
E: *500 seeds, $140.00*

Lucia (64 days) Ind. Everyone in our taste test kept coming back for more of these super-crunchy **red grapes**. The consensus: these diminutive 5–8g sweet fruits can boast some tartness and complexity. They “taste like a red Sun Gold.” Unlike Sun Gold, they have some crack resistance, vulnerable only in cold wet weather. Starting very early, Lucia cranks out tons of bright red fruits great in salads, on pizzas or in sauces. Brix 7.5. ③

4271 ***A***: *0.1g, $6.50* ***B***: *0.2g, $12.00* ***C***: *0.4g, $22.00*
D: *1g, $52.00*

Mountain Magic (69 days) Compact Ind. NC State University’s emeritus professor Randy Gardner would be at the top of any list of elite plant breeders. Gardner, who “retired” in 2008 after 32 years, is still adding to his impressive oeuvre of 22 superb tomato varieties, most bearing his signature prefix ‘Mountain.’ He was among the first to take up the heirloom challenge to breed flavor into his hybrids, and he is among the first to combat LB. Mountain Magic, with grape tomato in its parentage, does both. Even in my unstaked unpruned overcrowded tomato jungles, his unblemished round crack-free **two-bite red fruits** stand long. Almost all are marketable, growing in clusters of 7 or 8, 10–11 to the pound. As for production: rousing. During a 15-day period beginning Aug. 31, 2012, I harvested 106 fruits—all but three perfect—from a single plant. Juicy with a rich sprightly flavor that greatly pleased and refreshed me. Sums Bryan O’Hara, “Holy winner! Great vigor and disease resistance, high yields, great sweet flavor…you’ve got a great one.” Resists LB, V, F1-3 with tolerance to EB. ~480 seeds/g. ④



4225 ***A***: *10 seeds, $4.40*
B: *20 seeds, $8.00*
C: *40 seeds, $15.00*
D: *100 seeds, $30.00*
E: *500 seeds, $130.00*

Sweet Treats (75 days) Ind. Unusual among **cherry** tomatoes for its phenomenal flavor and incomparable gorgeous **deep ruby** color with matte finish at peak ripeness. Roberta said, “These are as close in taste to a full-size tomato as I’ve ever eaten, with a complexity and balance of sweetness and flavor, low acid and mellow. My vote is a resounding yes at any price.” Royalston, MA, market grower Larry Siegel’s endorsement was more restrained: “Large indeed. Plentiful indeed. Handy for bulking up my containers of mixed cherries for market. But seemed to take forever to change from pink to deep rose and while tolerant to cracking they are not resistant.” Large fruits (20–30g) come in clusters of 12–15 per truss. Perfect for salads and snacking. Ripens from pink to deep rose. Wait for full color to harvest. Brix 8–9. Resistant to TMV0,1, F1,2 and leaf mold. Tolerant to GLS, crown and root rot. ~400 seeds/g. ⑤

4254 ***A***: *10 seeds, $6.00* ***B***: *20 seeds, $9.00*
C: *40 seeds, $17.00* ***D***: *100 seeds, $37.00*
E: *500 seeds, $160.00*

Super Sweet 100 (78 days) Ind. Like Sweet 100, but with more disease resistance. Very popular hybrid **cherry** tomato ripens clusters of 1" round sweet **red** fruits. Should be staked. Will split in rainy conditions. Resistant to V and F1. ⑥

4256 ***A***: *0.1g, $4.80* ***B***: *0.2g, $8.00* ***C***: *1g, $29.00*
D: *2g, $52.00* ***E***: *4g, $100.00*

TURNIP & RUTABAGA

~6,000-12,000 seeds/oz. All **open-pollinated** except 2377 Oasis.

Culture: Thinning is critical for full-sized roots. Turnips have a shorter growing season and are not as cold-hardy or as good keepers as rutabagas. Turnips are best picked before they get large and fibrous. Rutabagas, also known as Swedes or Swedish turnips, form enlarged roots above ground with a finely branched system below.

Minimum germination temperature for turnips 40°, optimal range 60-95°.

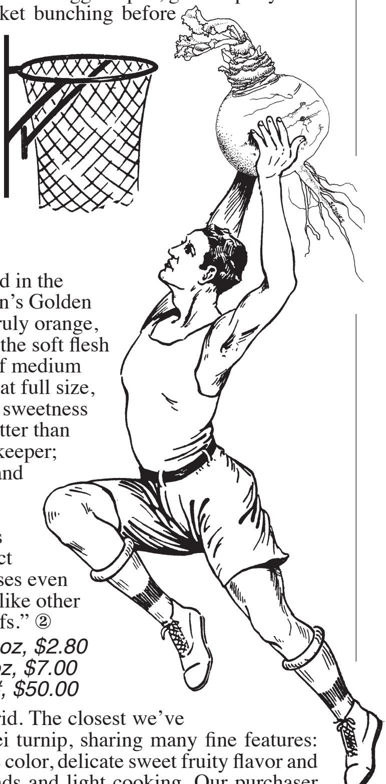
Disease: DM =Downy Mildew

Note: Because of quarantine, cannot ship rutabagas and turnips in packages larger than half oz. to the Willamette Valley except those that have tested negative for Black Leg and Black Rot. Our information at press time is in the description here; please check our website for updates.

Days to maturity are from date of seeding.

White Egg Turnip (45 days) *Brassica rapa* A staple of seed catalogs throughout most of the 19th century. Henderson in 1902 praised its perfectly smooth skin and snowy white flesh. Roots are egg-shaped, grow rapidly half out of the ground, ideal for early market bunching before they attain full size. The flesh is very sweet, so mild they can be eaten raw fresh from the garden, also good for pickling. Keeps well; flavor intensifies in storage. ②

2372 ***A***: *1/8oz, $1.70*
B: *1/2oz, $2.40*
C: *1oz, $3.30*
D: *4oz, $6.30*
E: *1#, $10.00*
K: *5#, $45.00*



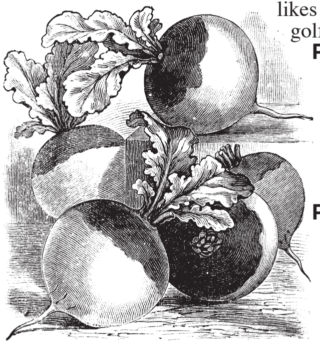
Gold Ball Turnip (45 days) *B. r.* Listed in the Album Vilmorin (1854-55) as Robertson's Golden Ball, also known as Orange Jelly. Not truly orange, the skin is very smooth and yellow and the soft flesh is golden-yellow. Rather broad leaves of medium height. Although the globes reach 4–5" at full size, they achieve peak flavor and maximum sweetness at 3" in diameter. Alan LePage says "better than rutabagas or any other turnip." A good keeper; he was selling them into March. Maryland market grower Brett Grohsgal concurs, Gold Ball "comes into its own after the frosts and freezes have begun…remains mild and nutty [with] a firm, near-perfect texture. Best simmered or roasted. Pleases even those retail customers who don't really like other turnips, and a strong seller with our chefs." ②

2376 ***A***: *1/8oz, $2.00* ***B***: *1/2oz, $2.80*
C: *1oz, $3.40* ***D***: *4oz, $7.00*
E: *1#, $12.00* ***K***: *5#, $50.00*

Oasis Turnip (50 days) *B. r.* F-1 hybrid. The closest we've found to the much-sought-after Hakurei turnip, sharing many fine features: smooth round globes, refined pure white color, delicate sweet fruity flavor and crisp tender texture so suitable for salads and light cooking. Our purchaser Nikos Kavanya esteems it highly. Good for fall as well as early summer crops. Best harvested at bunching size, but retains quality for a while. From Takii in Japan. Tolerant to DM. Tested negative for black rot and black leg. ⑤

2377 ***A***: *1/16oz, $4.20* ***B***: *1/4oz, $11.00* ***C***: *1/2oz, $16.00*
D: *1oz, $26.00* ***E***: *4oz, $96.00* ***K***: *1#, $320.00*

Purple Top White Globe Turnip (50 days) *B. r.* Popular variety with purple tops, white bottoms and white flesh can attain 6" in diameter. An heirloom from before 1880. Starks claimed in 1921 that "other varieties are good, but this one stands in a class by itself." Sometimes used to feed livestock, but CR likes them in soups, and Joanna eats them up to golf-ball-sized with the greens.



Purple Top White Globe ②

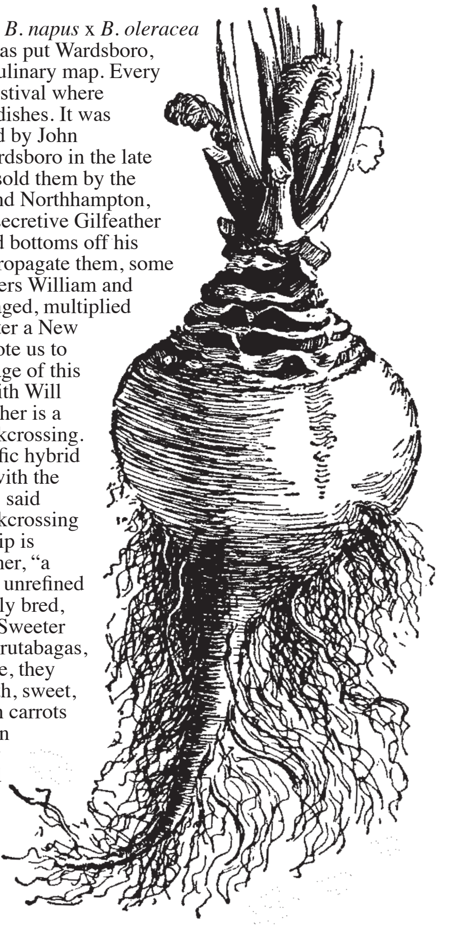
2378 ***A***: *1/8oz, $1.70*
B: *1/2oz, $2.40*
C: *1oz, $3.40*
D: *4oz, $6.50*
E: *1#, $11.00*
K: *5#, $46.00*

Purple Top White Globe - Organic ③

2379 ***A***: *1/8oz, $1.90*
B: *1/2oz, $2.60*
C: *1oz, $4.00*
D: *4oz, $7.00*
E: *1#, $14.00*
K: *5#, $60.00*

Red Round Turnip (55 days) *B. r.* Very similar to Scarlet Ohno turnip, Red Round's root is a little rounder, but with the same tennis ball size and bright red skin. Inside flesh is white with a bit of variable rose blushing. Slice them on a crudité platter or use them to make a beautiful magenta kimchi. ⑤

2384 ***A***: *1/8oz, $2.40* ***B***: *1/2oz, $7.00* ***C***: *1oz, $9.00*
D: *4oz, $26.00* ***E***: *1#, $80.00*



Gilfeather Turnip (85 days) *B. napus* x *B. oleracea* This white-fleshed heirloom has put Wardsboro, VT, (population 900) on the culinary map. Every October, Wardsboro hosts a festival where Gilfeather is served in all the dishes. It was either developed or discovered by John Gilfeather (1865-1944) of Wardsboro in the late 1800s. In the early 1900s he sold them by the cartload in Brattleboro, VT, and Northhampton, MA. Although the lanky and secretive Gilfeather is said to have cut the tops and bottoms off his turnips so no one else could propagate them, some seeds escaped to market growers William and Mary Lou Schmidt, who salvaged, multiplied and commercialized them. After a New England–based seed saver wrote us to inquire about the genetic lineage of this beloved variety, we chatted with Will Bonsall about whether Gilfeather is a rutabaga or the result of a backcrossing. "The rutabaga is an interspecific hybrid cross of true turnip, *B. rapa*, with the wild colewort …*B. oleracea*," said Will. He elaborated that a backcrossing between a rutabaga and a turnip is very unlikely, making Gilfeather, "a somewhat more primitive and unrefined rutabaga unlike the more highly bred, more even-shaped varieties." Sweeter and later to mature than other rutabagas, not woody even at softball size, they taste better after frost. "Smooth, sweet, silky—we love it mashed with carrots and a small potato," said Susan Lowry of Fryeburg, ME. Amy Burke of York, ME, suggested adding Gilfeather to our season-extending greens list. At the end of January she found them even hardier than Red Russian and Beedy's Camden kales. Listed on Slow Food's Ark of Taste.

Gilfeather Turnip ①

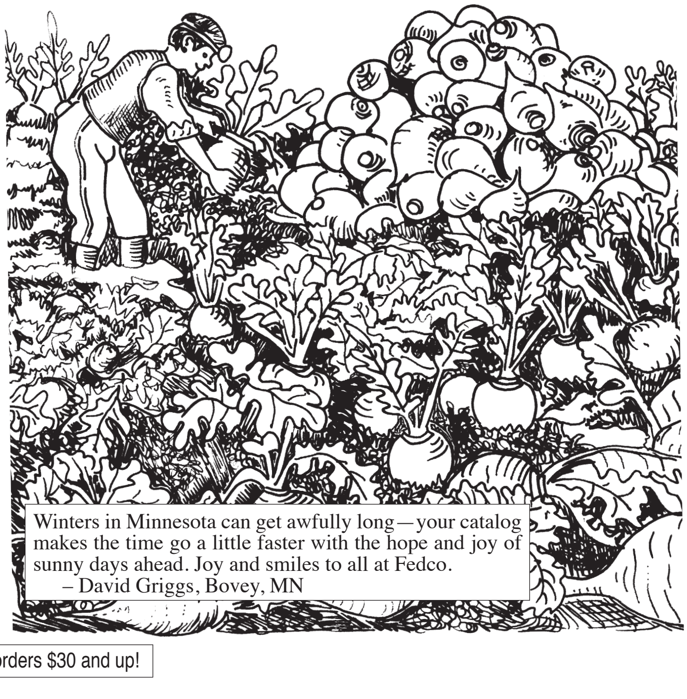
2392 ***A***: *1/16oz, $2.50* ***B***: *1/4oz, $6.60* ***C***: *1oz, $13.00*

Gilfeather Turnip - Organic ①

2393 ***A***: *1/16oz, $2.80* ***B***: *1/4oz, $7.50* ***C***: *1oz, $14.00*
D: *4oz, $48.00*

Laurentian Rutabaga (95 days) *B. n.* This popular Canadian variety sports a deep purple crown and cream-yellow base. Uniform 5–6" almost neckless roots suitable for winter storage, larger and sweeter than American Purple Top. Pale yellow flesh has refined texture and taste. "The mix of a sweet cabbage flavor with a potato-ish texture," summarizes Anne Elder. ②

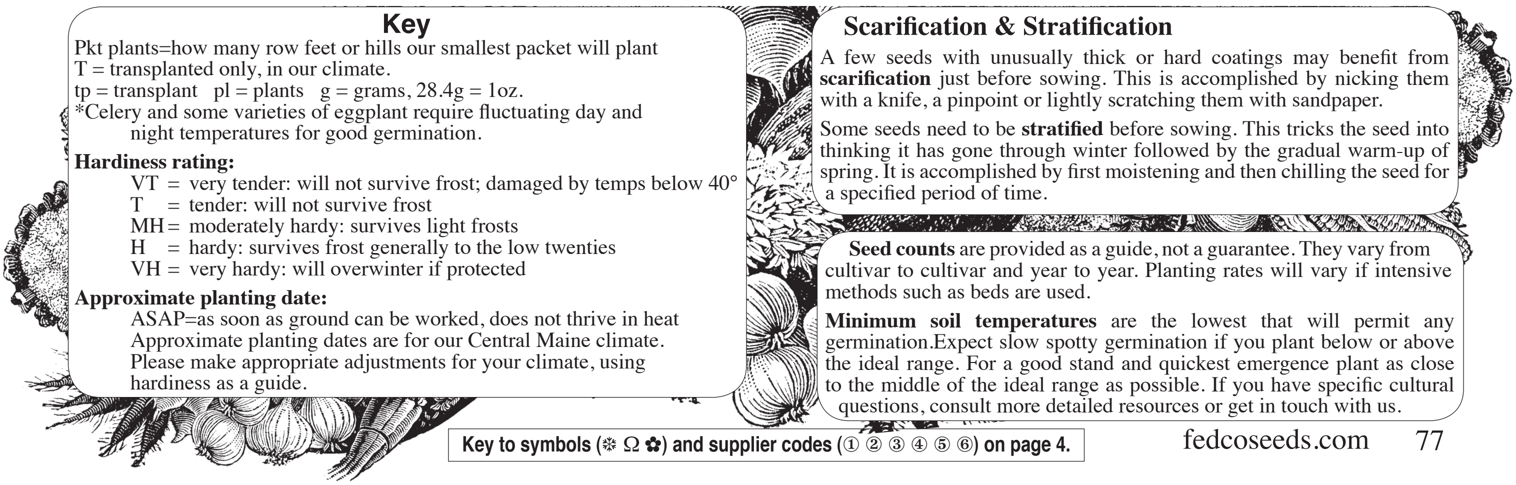
2398 ***A***: *1/8oz, $1.80* ***B***: *1/4oz, $2.50* ***C***: *1oz, $3.60*
D: *4oz, $6.60* ***E***: *1#, $16.00* ***K***: *5#, $72.00*



Winters in Minnesota can get awfully long—your catalog makes the time go a little faster with the hope and joy of sunny days ahead. Joy and smiles to all at Fedco.
– David Griggs, Bovey, MN

VEGETABLE PLANTING GUIDE

Vegetable	Page # range	avg. sds/oz	sds/100'	Pkt plants	distance apart	thin to	row spacing	seed depth	min soil temp °F	ideal soil temp	hardiness	planting dates
Artichoke	6	560	T	10 pl	3'	–	2'	1/2"	60	65-85	MH	tp late
Arugula	28	15000	3g	60'	1"	4"	18"	1/4"	50	65-85	MH	May 1/Aug 1
Asian Greens	32-34	5000-15000	varies					1/4"	50	65-85	MH	early May
Basil	80-81	17000	5g	10-80'	1/2"	4"	18"	1/4"	65	70-85	VT	June 1
Bean, Bush & Dry	6-8	90	8 oz	25'	3-4"	–	2-3'	1"	60	60-80	T	late May
Bean, Fava	10	17	1#	12'	3-4"	–	2-3'	1"	40	40-75	H	ASAP
Bean, Lima	10	60	1#	40-60'	4-6"	–	3'	1"	60	70-85	VT	late May
Bean, Pole	9-10	65	6 oz	10 pl/oz	6/pole	3/pole	3-4'	1"	60	60-80	T	late May
Bean, Soy	10	80	5 oz	10'	3"	–	3'	1"	60	70-90	T	June 1
Beet	11-12	2200	5/8 oz	20'	1"	2-4"	12-18"	1/2"	40	60-85	H	Apr-July
Broccoli	12-14	5000-8000	5g	.5g=10'	1"	24-30"	30"	1/4"	50	65-85	MH	tp May/June
Brussels Sprouts	14	5000	5g	.5g=10'	1"	24-30"	24-30"	1/4"	50	65-85	H	tp May/June
Cabbage	15	6000-7000	5g	.5g=10'	1"	24-30"	24-30"	1/4"	40	55-95	MH	tp May/June
Carrot	17-18	18000	10g	1/8oz=35'	1/4"-1/2"	1"	16-24"	1/2"	40	60-85	H	Apr-July
Cauliflower	16	6000-7000	4g	.5g=12'	1"	30"	30-36"	1/4"	40	55-80	MH	tp May/June
Celery/Celeriac	19	75000	T	500	8"	–	2-3'	1/8"	40	59-70*	T	tp June 1
Chard	29	800-2000	1 1/2 oz	5-13'	1"	3-6"	18-24"	1/2"	40	50-85	H	ASAP
Chicory	29	16000	T	300 pl	1'	–	2'	1/8"	50	60-85	H	tp late June
Chinese Cabbage	32	9500	1/4 oz	25'	1/2"	12-18"	24-30"	1/4"	50	70-95	MH	late May or tp
Corn, OP	20-22	100	4 oz	50'	3"	1'	3'	1"	50	60-95	T	late May
Corn, hybrid	20-22	155	4 oz	50'	3"	1'	3'	1"	50	60-95	T	late May
Cress	30	9000	3g	50-70'	1/2"	1-2"	18"	1/4"	50	65-85	MH	May 1
Cucumber	23-24	1000	1/2 oz	11'	2"	4"	3-4'	1/2"	60	65-95	VT	June 1 or tp
Eggplant	25	7000	T	40 pl	20-30"	–	30-36"	1/4"	60	75-90*	VT	tp early June
Endive	30	18000	5g	40'	1"	8"	18-24"	1/4"	50	60-85	H	Apr-July
Gourds, large	26	120-280	T	20 pl	6/hill	2-3/hill	6'	1/2"	60	70-90	T	tp early June
Gourds, small	26	500	1/5 oz	10 hills	6/hill	3/hill	4-6'	1/2"	60	70-90	T	late May
Kale/Collards	35-36	5000-8000	5g	1g=20'	1"	12"	2'	1/4"	50	65-85	VH	ASAP-July
Kohlrabi	36	6000	4g	1g=25'	1"	24"	24"	1/4"	50	65-85	MH	tp May/June
Leek	50	9000	T	1g=320 pl	8"	–	2'	1/2"	50	60-70	MH	tp May 1
Lettuce	37-42	25000	4g	1g=25'	1/3"	1'	12-18"	1/8"	35	40-80	H	ASAP-Aug
Mâche	30	17000	1/4 oz	25'	1/2"	2"	18"	1/4"	48	50-68	VH	ASAP-Aug
Melon	43-46	960	T	12-20 hills	3/pot	2/hill	5'	1/2"	60	75-95	VT	tp early June
Mustard	33	15600	1/8 oz	40'	1"	4-6"	2'	1/4"	50	65-85	MH	Apr-Aug
Okra	47	420	T	30 pl	12"	–	2-3'	1/4"	60	70-90	VT	tp early June
Onion/shallots	47-50	7000	T	450 pl	4"	–	12-18"	1/2"	50	60-70	MH	tp May 1
Pac Choi	34	12500	1/4 oz	14-25'	1/2"	6-12"	2'	1/4"	50	70-95	MH	May or tp
Parsley	84	14000	1/4 oz	25'	1/4"	1"	12-18"	1/4"	40	50-80	VH	Apr-Aug
Parsnip	50	7000	1/2 oz	25'	1/2"	2-3"	12-18"	1/2"	46	55-77	VH	Apr-July
Pea	51-52	125	8 oz	25'	1 1/2"	–	3-5'	3/4"	40	50-75	plants H	ASAP
Pea for fall crop	51-52	125	8 oz	25'	1 1/2"	–	3-5'	3/4"	40	50-75	T	July
Pepper	53-56	2800-5600	T	10-50 pl	12-18"	–	2-3'	1/4"	60	68-95	VT	tp early June
Pumpkin	66-67	100-280	1/2-1oz	3-8 hills	5/hill	3/hill	6'	1"	60	70-90	T	late May
Radicchio	30	19000	1/2 oz	5-30'	1"	8-10"	18"	1/8"	50	60-85	H	late June
Radish	57-58	2500	1 oz	12'	1/2"	2"	18"	1/2"	40	55-85	H	Apr-Aug
Rutabaga/Turnip	76	8000-14000	1/3 oz	40'	1/2"	3-6"	18"	1/4"	40	60-95	H	Apr-July
Salsify/Scorzonera	58	2000	5/8 oz	20'	1"	2"	18"	1/2"	50	65-85	H	Apr-Jun
Shiso	34	14000	T	150 pl	8-12"	–	18-24"	1/4"	65	68-75	VT	tp early June
Spinach	59	1400-2600	1/2 oz	40'	1"	2"	12-18"	1/2"	35	45-65	VH	ASAP
Spinach, fall crop	59	1400-2600	1/2 oz	40'	1"	2"	12-18"	1/2"	35	45-65	VH	Aug
Squash, patty pan	60	200-320	5/8 oz	5-8 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp
Squash, winter	62-67	120-450	1/2-2 oz	3-15 hills	5/hill	3/hill	4-6'	1"	60	70-90	T	late May or tp
Squash, summer	60-61	160-320	1/2 oz	5-8 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp
Tomato	68-75	9000	T	6-125 pl	3'	–	3'	1/4"	50	60-85	T	tp June 1-10
Watermelon	45-46	670	T	7-14 hills	3/pot	2/hill	5'	1/2"	60	75-95	VT	tp early June
Zucchini	61	180	1 oz	4-6 hills	5/hill	2-3/hill	4'	1"	60	70-90	T	late May or tp



Key

Pkt plants=how many row feet or hills our smallest packet will plant
T = transplanted only, in our climate.
tp = transplant   pl = plants   g = grams, 28.4g = 1oz.
*Celery and some varieties of eggplant require fluctuating day and night temperatures for good germination.

Hardiness rating:

VT = very tender: will not survive frost; damaged by temps below 40°
T = tender: will not survive frost
MH = moderately hardy: survives light frosts
H = hardy: survives frost generally to the low twenties
VH = very hardy: will overwinter if protected

Approximate planting date:

ASAP=as soon as ground can be worked, does not thrive in heat
Approximate planting dates are for our Central Maine climate. Please make appropriate adjustments for your climate, using hardiness as a guide.

Scarification & Stratification

A few seeds with unusually thick or hard coatings may benefit from **scarification** just before sowing. This is accomplished by nicking them with a knife, a pinpoint or lightly scratching them with sandpaper.

Some seeds need to be **stratified** before sowing. This tricks the seed into thinking it has gone through winter followed by the gradual warm-up of spring. It is accomplished by first moistening and then chilling the seed for a specified period of time.

Seed counts are provided as a guide, not a guarantee. They vary from cultivar to cultivar and year to year. Planting rates will vary if intensive methods such as beds are used.

Minimum soil temperatures are the lowest that will permit any germination.Expect slow spotty germination if you plant below or above the ideal range. For a good stand and quickest emergence plant as close to the middle of the ideal range as possible. If you have specific cultural questions, consult more detailed resources or get in touch with us.

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

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for Flowers, Herbs and Grains

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Herbs at a Glance

Name	item#	Botanical name	ABP	height	uses	part	sow	temp	days	notes	cover	sun
Anise Hyssop	4407	*Agastache foeniculum*	P Z4	2-3'	B M	L F	DW TP	W	7-14	Lt	P	FP
Arnica	4409	*A. chamissonis*	P Z3	20"	M O	F	TP	C		St, Lt	N	F
Ashwagandha	4411	*Withania somnifera*	TP/A	2-3'	M	R	TP	M	7-21	Lt	N	FP
Astragalus	4412	*A. membranaceus*	P Z4	18-48"	M	R	DS TP	M	7-28	Sc Sk	L	F
Basil	4414ff	*Ocimum basilicum*	TA	8-24"	S E M	L	TP DW	W	4-10	W	R	F
Basil, Sacred	4467	*Ocimum tenuiflorum*	TA	18-24"	S M	L	TP DW	W	4-10		R	F
Bergamot	4481	*Monarda fistulosa*	P Z3	3-4'	B M O	L	DS DF	M	7-14	Lt	N	FP
Borage	4490	*Borago officinalis*	SSA	2-3'	E M O	F L	DS DF	C	7-14		P	FP
Calendula	4920ff	*C. officinalis*	SSA	18-24"	M O	F	DS	M	4-14		R	FP
Caraway	4507	*Carum carvi*	SSB	2'	S E M	S L	DS	C				F
Catnip	4509	*Nepeta cataria*	P Z3	1-2'	M B	L	DS DF	M	7-10	Lt	N	F
Chamomile	4511	*Matricaria recutita*	SSA	8-18"	B M	F	DS	M	10-14	Lt	N	F
Chervil	pg 81	*Anthriscus cerefolium*	SSB	12-18"	S	L	DS	W	7-14	Lt	L	P(F)
Chives	4513	*Allium schoenoprasum*	P Z3	1-2'	S M E	L F	DS	C	7-14		L	FP
Cilantro	4517	*Coriandrum sativum*	A	1-2'	S E M	L S	DS	C	7-14		R	F(P)
Codonopsis	4520	*Codonopsis pilosula*	P Z4	5-6'	M O	R	TP	M	7-42		N	P(F)
Cumin	4522	*Cuminum cyminum*	A	1-2'	S M	S	TP	M	7-14	PP		F
Dill	4530ff	*Anethum graveolens*	SSA	2-5'	S M O	S L	DS	W	7-21		R	F
Echinacea	4547	*Echinacea purpurea*	P Z3	2-4'	M O	R F	TP DW	W	14-21	St Lt	L	F
Elecampane	4550	*Inula helenium*	P Z3	5-8'	M O	R	TP	M	7-10	Lt	N	FP
Fennel, for seed	4560	*Foeniculum vulgare*	TP/A	1-3'	S M E	L S	DS	M	7-14		R	F
Feverfew	4572	*Tanacetum parthenium*	P Z4	18-30"	M O	L	TP DS	M	7-14	Lt	N	FP
Garlic Chives	4577	*Allium tuberosum*	P Z4	12-18"	S E M	L F	DS	C	7-14		L	FP
Horehound	4580	*Marrubium vulgare*	P Z3	20-24"	M C	L	TP DS	M	10-21		P	F
Hyssop	4582	*Hyssopus officinalis*	P Z3	12-18"	M O	L F	TP DF	C	7-21		R	FP
Lady's Mantle	4584	*Alchemilla mollis*	P Z3	12-18"	M O	L	TP	M	21-30	St Lt	N	FP
Lavender	4585ff	*Lavandula angustifolia*	P Z5	2-3'	M O	F L	TP DF	W	14-28	St Lt	P	F
Lemongrass	4587	*Cymbopogon flexuosus*	TP/A	3-4'	S B M	L	TP	W	21-42		L	FP
Lemon Balm	4588	*Melissa officinalis*	P Z4	1-2'	B M S	L	TP DS	M	7-14	Lt	N	FP
Lemon Mint	4589	*Monarda citriodora*	SSA	2-3'	B M	L	DS	M	7-21		R	P(F)
Lovage	4592	*Levisticum officinale*	P Z4	3-6'	S M	L	DS DF	M	10-21		R	F(P)
Marjoram	4615	*Origanum majorana*	TP/A	1'	S	L	TP	M	7-21	W	N	F
Marshmallow	4619	*Althaea officinalis*	P Z4	4-6'	M O	R L	DS DF	C	14-21	St	L	FP
Milk Thistle	4630	*Silybum marianum*	SSA	3-5'	M E	S F L	DS DF	M	7-14	Lt	L	F
Motherwort	4640	*Leonurus cardiaca*	P Z3	2-4'	M	L F	DS DF	M	7-21	Lt	L	F
Mustard Seed	4642	*Sinapis alba*	A	2-4'	S E M	S	DS	C	7-10		L	F
Nettle, Stinging	4644	*Urtica dioica*	P Z2	3-6'	E M	L	DS	M	10-14	Lt	R	FP
Oregano, Greek	4648	*Origanum heracleoticum*	P Z4	6-12"	S M	L	TP	M	7-21	Lt	N	F
Oregano, Zaatar	4649	*Origanum syriacum*	TP/A	8-24"	S	L	DS TP	M	7-21		N	F
Parsley	pg 84	*Petroselinum crispum*	B Z3	8-12"	S E M	L	DS DF	M	14-60	Sk	R	FP
Pennyroyal	4651	*Mentha pulegium*	P Z5	8-12"	M O	L	TP	C	10-14		N	FP
Rosemary	4656	*Rosmarinus officinalis*	TP Z8	3-4'	S M O	L	TP	M	10-42	St Lt	P	F
Sage	4664	*Salvia officinalis*	P Z4	2-3'	S B M	L	TP DS	W	10-21	Lt	P	F
Savory, Summer	4672	*Satureja hortensis*	A	12-18"	S M	L	DS	W	7-14	Lt	R	F
Savory, Winter	4674	*Satureja montana*	P Z3	6-12"	S M	L	TP	M	10-21	Lt	N	F
Shiso	pg 34	*Perilla frutescens* var. *crispa*	TA	2-3'	S M O	L	TP	W	7-14	Sk St Lt	L	FP
Spilanthes	4683	*Spilanthes oleracea*	TA	8-12"	M O E	F L	TP	W	4-10		P	F
Stevia	4684	*Stevia rebaudiana*	TP/A	24"	S	L	TP DW	W	7-21	Lt	L	FP
St Johnswort	4686	*Hypericum perforatum*	SP Z3	1-3'	M	F L	DS DF	M	14-28	St Lt	N	F
Thyme	4687	*Thymus vulgaris*	P Z4	10-12"	S M	L	TP	C	14-28	Lt	N	F
Valerian	4690	*Valeriana officinalis*	P Z3	3-5'	M O	R	DS	M	10-21	St	L	FP
Vervain	4692	*Verbena hastata*	P Z3	5-6'	M O	R	TP	M	21-28	St Lt	N	F
Woodruff	4698	*Galium odoratum*	P Z5	6-8"	S M C	L	DS TP	C	21-200	St	L	Sh,P
Yarrow	4699	*Achillea millefolium*	P Z2	1-2'	M O C	F L	DS DF	W	10-14	Lt	N	F

ABP: A=annual, B=biennial, P=perennial,
Z=hardiness zone, TA= tender annual,
SSA=self-sowing annual, SSB=self-sowing biennial,
SP=short-lived perennial, TP=tender perennial,
TP/A=tender perennial grown as annual.

height: typical height at maturity.

uses: S=seasoning, M=medicine, O=ornamental,
B=beverage, E=edible, C=ceremony.

part: part that is used: S=seed, L=leaf, F=flower, R=root.

sow: DS=direct sow in spring ASAP, DW=direct sow when soil has warmed or after danger of frost has passed, TP=transplant, DF=direct sow in fall.

Nearly any herb can be started indoors and transplanted, but this tends to be more work; TP means this method is strongly suggested for best results. Many perennials can be started in early summer indoors or out; they take several years to mature anyway, what's a few months?

temp: suggested soil temperatures for good germination: C=cool, 60-65°, M=moderate, 65-70°, W=warm, 70-85°.

days: number of days to seedling emergence.

notes: Lt=needs light to germinate,
Sk=soak seed 12-24 hrs,
Sc=scarify seed with sandpaper or emery board, W=water sparingly,
PP=start in peat pots and take care not to disturb root in transplanting,
St=stratify seed; place in moist soil and freeze or refrigerate or alternate between the fridge and freezer.

Nearly any herb requiring stratification can be fall-sown outdoors or in a cold frame–let winter do the work for you!

cover: L=cover lightly, P=pat down gently,
R=rake or scuffle into soil, N=no, don't cover.

sun: F=full sun, P=part sun, Sh=shade,
FP=prefers full sun but tolerates part, PF=prefers part but tolerates full,
P(F)=prefers part, tolerates full only in cool or moist areas,
F(P)=prefers full sun, needs part shade in hot climates.

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

HERBS

All herbs are **open-pollinated**, except **4459** Round Midnight basil. See chart on page 79 for uses and cultural information. A botanical index is on page 78.

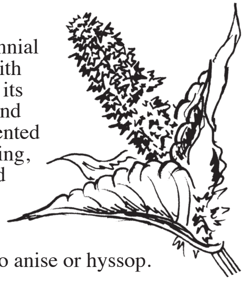
About medicinal herbs: Archeological evidence dates the medicinal use of herbs back 60,000 years to the Neanderthals. 85% of the world's population employ herbs as medicines, and 40% of pharmaceuticals in the U.S. contain plant-derived materials. Fewer than 10% of higher plant species have been investigated for their medicinal components. Interest in traditional herbal remedies continues to grow.

Statements about medicinal use of plants have not been evaluated by the FDA, and should not be used for the diagnosis, treatment, cure or prevention of any ailment. Before using or ingesting any medicinal plant, consult a healthcare practitioner familiar with botanical medicine.

Burdock (p. 58), Calendula (p. 90), Breadseed Poppy (p. 98), alfalfa, mammoth red clover and oats (see Farm Seed, pp. 119, 120, 122) also have medicinal uses. Medicinal herbs such as black cohosh are available as plants from our Trees catalog. Some herbs are customarily grown from divisions because they cannot come true from seed, such as scented thymes and flavored mints; some require fall sowing of fresh seed, such as sweet cicely and angelica.

Drying herbs at home is not difficult. Whole leaves retain their flavor at least a year. To use fresh herbs in cooking, triple the dried quantity called for in a recipe.

Anise *Dropped for slow sales.*



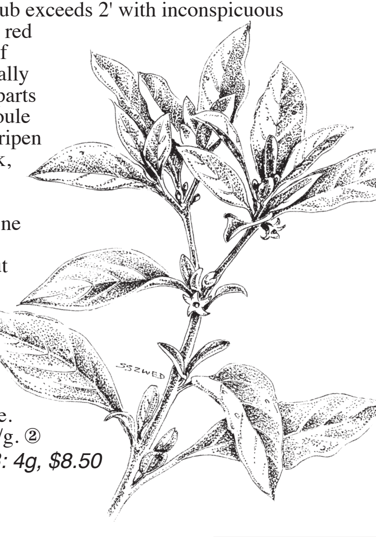
Anise Hyssop - Organic *Agastache foeniculum* Perennial to Zone 4. Bushy midwestern native permeates the air with sweet licorice fragrance. An outstanding insectary plant, its long-blooming nectar-laden purple flowers attract bees and parasitic wasps, butterflies and hummingbirds. Anise-scented foliage and flowers delightful as a tea or culinary seasoning, or filler in mixed bouquets. The tea induces sweating and strengthens the heart, was used also for fevers, colds, and by Native Americans as a cough medicine. Sow or transplant 1–1½' apart in well-drained warm loam. Grows 3' tall, 2' wide. Vigorous self-sower. Not related to anise or hyssop. ~2,600 seeds/g. ✿ ①

4407 ***A**: 0.2g, $2.10* ***B**: 1g, $3.70* ***C**: 5g, $7.50* ***D**: 25g, $19.00*

Arnica Chamissonis - Organic *A. c.* Perennial to Zone 3. Meadow arnica is a native American species that will grow successfully in low-elevation gardens. It is generally accepted as a substitute for the official European *A. montana*. Use the yellow flowers at full bloom either fresh or dried, in compresses and salves as an external remedy on unbroken skin to reduce swelling and bruising caused by traumatic injury, and on arthritic joints. 20" plants yield well with multiple flower stalks blooming for most of the early season. Surface sow in pots, then stratify seed and give it light to germinate. Transplant into humus-rich soil in full sun. ~2,500 seeds/g. ✿ ①

4409 ***A**: 0.02g, $2.20* ***B**: 0.1g, $4.00*

Ashwagandha - Organic *Withania somnifera* Annual. In Sanskrit its name means 'the vitality of the horse' and it imparts such energy; *somnifera* promotes sleep. An herb of wide value, generally known as the ginseng of Ayurvedic medicine. Upright shrub exceeds 2' with inconspicuous green-to-yellow flowers ripening to red berries. Roots are dried at the end of the growing season and used internally powdered or tinctured (other plant parts are toxic if eaten). Herbalist Deb Soule harvests the roots when the berries ripen in mid-October. Her delightful book, *How to Move Like a Gardener*, (**9636** in the book section) has more details about ashwagandha. One of the best rejuvenators, especially good for the elderly, it tones without overstimulating and can be used in all conditions of weakness and chronic debilitation. Needs warmth and light to germinate. Sow indoors in the spring and transplant out in June; prefers dry stony soil in sun or partial shade. Perennial in Zone 10. ~1,000 seeds/g. ②



4411 ***A**: 1g, $3.20* ***B**: 4g, $8.50* ***C**: 12g, $22.00*

Astragalus - Organic *A. membranaceus* Perennial to Zone 4. Safe effective adaptogenic tonic to use daily throughout the year, aiding digestion and promoting immune system health (*wei qi*). Called *huang qi* in Chinese and Chinese Milk Vetch Root in English. Especially good for vegetarians. Also used in cases of exhaustion, food allergy or depression, and to increase assimilation, improve digestion, and eliminate excess fluids. In his book *Healing Lyme* Stephen Harrod Buhner says that astragalus can prevent and treat the many symptoms of Lyme disease. Small yellow pea-like flowers on upright 1½–4' stems with vetch-like leaves. Plant in deep well-drained slightly alkaline soil. Harvest 4- to 6-year-old roots in fall. ~250 seeds/g. ②

4412 ***A**: 0.5g, $2.90* ***B**: 3g, $7.50* ***C**: 9g, $14.00* ***D**: 27g, $33.00*

BASIL *Ocimum basilicum*

~600 seeds/g. Indispensable culinary herb, in cultivation for more than 3,000 years. By far our most popular herb, the various kinds selling over 11,000 packets in 2018.

Culture: Direct seed when soil warms in late spring or transplant after danger of frost in well-drained moderately rich soil. Young seedlings will damp off if heavily watered during cool cloudy weather. Water sparingly at first. Use row covers to enhance early season vigor and speed maturity. Thin to 8–12", top mature plants to induce branching and increase total yield. Harvest before plants blossom. Annual, absolutely intolerant of frost, damaged by temperatures in the 30s.

Diseases: Where so indicated our varieties have been sampled and found to be fusarium-free. While not a guarantee that the entire lot is fusarium-free, a negative test improves the odds. No samples were taken for varieties not so indicated.

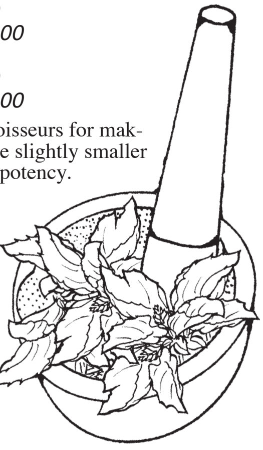
Sweet (70 days) The heaviest-yielding variety, recommended for drying, all-around great eating, and large-scale pesto production. We sold more than 3,000 packets last year of these two strains of Sweet Basil.

Sweet Genova strain. ⑤

4414 ***A**: 4g, $2.30* ***B**: 28g, $6.00* ***C**: 112g, $13.00* ***D**: 336g, $33.00*

Sweet - Organic ⑤

4415 ***A**: 4g, $2.70* ***B**: 28g, $8.30* ***C**: 112g, $23.00* ***D**: 336g, $58.00*



Genovese (70 days) The choice of many connoisseurs for making pesto. Also called Perfumed Basil. Leaves are slightly smaller and finer than Sweet Basil with more aroma and potency.

Genovese ②

4418 ***A**: 2g, $2.00* ***B**: 10g, $3.60* ***C**: 40g, $6.50* ***D**: 160g, $12.60*

Genovese - Organic ①

4419 ***A**: 0.5g, $2.20* ***B**: 5g, $3.00* ***C**: 15g, $4.20*

Mammoth No grape leaves available? Lettuce-leaf type has very large ruffled leaves suitable for rolling or stuffing. Flavor similar to sweet basil. Give plenty of space per plant so leaves can dry out after wet spells. Smaller types are easier for drying. ②

4422 ***A**: 0.5g, $2.00* ***B**: 5g, $3.50* ***C**: 15g, $5.00* ***D**: 60g, $11.00*

Spicy Globe *O. b. minimum* (70 days) Marvelous little basil grows to about 8" and maintains a compact mound of light green leaves and white flowers. Its leaves are small, thin and strongly scented. Great in an ornamental border, windowbox, or as an indoor potted plant to snip for culinary use. ②

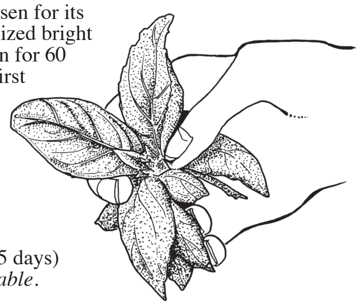
4430 ***A**: 0.5g, $2.30* ***B**: 5g, $3.70* ***C**: 15g, $8.00* ***D**: 60g, $17.00*

Anise Originally from Persia. Vigorous mulberry-tinted basil with anise fragrance makes a highly decorative tall bushy plant. Slow to bolt. Great in Italian tomato sauces. Also used in Thai and various Mediterranean cuisines. ②

4436 ***A**: 0.5g, $2.20* ***B**: 5g, $3.60* ***C**: 15g, $8.00* ***D**: 60g, $14.00*

Sweet Dani Lemon (65 days) 1998 AAS for its extraordinary vigor that manifests even in the seedling stage and continues through the summer. Tall upright plant reaching almost 30" is 2–3 times as vigorous as Lemon basil with heavier yields of large light green leaves. Does not need coddling. Tested for fusarium. ⑤

4449 ***A**: 0.5g, $2.90* ***B**: 1.5g, $4.60* ***C**: 4.5g, $9.50* ***D**: 13.5g, $22.00*



Mrs. Burns Lemon (64 days) Chosen for its intense lemony fragrance. Medium-sized bright green leaves. Heirloom variety grown for 60 years in southeastern New Mexico, first offered commercially by Native Seeds/Search, has now achieved nationwide fame. ③

4450 ***A**: 0.5g, $2.50*
***B**: 5g, $4.30*
***C**: 15g, $5.20*
***D**: 60g, $13.00*

Lime - Organic *O. americanum* (65 days) Supplier has discontinued. *Not available.*

Round Midnight (65 days) F-1 hybrid. This lustrous purple basil lures you from across the garden with its broad dark lightly ruffled gently serrated leaves wafting an aroma of allspice, nutmeg and light musk. Noting the 12–14" stature and well-branched uniform habit, you bend to pluck a tender leaf. Savory with mild pungency. Round Midnight slowly reveals spikes of purple flowers. Tested for fusarium. ⑤

4459 **A**: 0.25g, $2.60 **B**: 1g, $4.30 **C**: 5g, $11.00
D: 15g, $24.00

Purple Ruffles (85 days) Deep purple plants with serrated and crinkled leaves for striking visual contrast. Imparts attractive color to basil vinegars. Not a vigorous grower in our climate but will reach a height of 18" in peak summer heat. Some plants will have green foliage and in some the green will be mixed with purple. 1987 AAS. Tested for fusarium. ⑤

4461 **A**: 0.25g, $2.80 **B**: 1g, $4.70 **C**: 5g, $13.00
D: 15g, $36.00

Kapoor Tulsi - Organic *O. tenuiflorum* (100 days) A superior strain of Tulsi or Sacred basil, with a more compact growth habit and more pungent sweet flavor. Native to India and used in Indian and Thai cuisine. Spicier than other basils and quicker to go to seed, but still usable when covered with purple flowers. Makes a tasty tea, a Fedco staff favorite at break time, for it strengthens the immune system and increases oxygen uptake in the brain. Used in Ayurvedic medicine as a poultice on acne, ringworm, eczema and insect bites. Plants stand a bit more cold than other basils. ~1500 seeds/g. ①

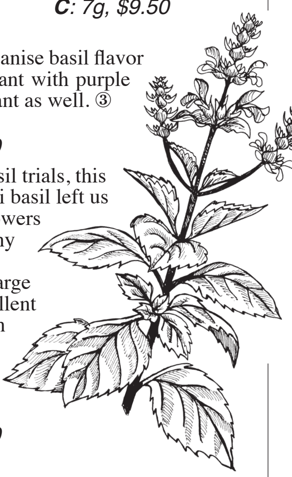
4468 **A**: 0.1g, $2.40 **B**: 1g, $5.00 **C**: 7g, $9.50
D: 21g, $17.00

Thai (60 days) Lends its distinctly strong licorice-anise basil flavor to Thai food. An attractive 12–18" fine-leaved plant with purple stems, seed heads and flowers. Good container plant as well. ③

4470 **A**: 0.5g, $2.10 **B**: 5g, $4.50
C: 15g, $6.30 **D**: 60g, $17.00

Flowering Thai Basil (60 days) In our 2019 basil trials, this outstanding culinary and ornamental strain of Thai basil left us breathless. Sporting the same purple stems and flowers of standard Thai, but displayed upon a strong bushy umbrella form with wide and beautifully ample flowers. Flowering Thai voluminously produces large broad leaves, more akin to Sweet Basil, with excellent savory-sweet anise flavor. Perfect to edge any path or pleasure planting, its bouquet habit and bounty for cooking make it ideal for near-house easy access. ② **NEW!**

4471 **A**: 0.5g, $2.10 **B**: 5g, $4.50
C: 15g, $6.30 **D**: 60g, $17.00



Wild Bergamot - Organic *Monarda fistulosa* Perennial to Zone 3. Our native wildflower species of the familiar bee balm is a great addition to the perennial border in light dry alkaline soils. The 3–4' plants bear aromatic lavender blossoms highly attractive to pollinators. Leaves impart pungent aroma to teas, potpourri, meats and beans. Traditionally used as an aromatic stimulant to improve digestion and increase perspiration. Native Americans employed it internally to combat colds and flus and externally to calm skin eruptions. ~2,000 seeds/g. ✿ ①

4481 **A**: 0.1g, $2.50 **B**: 0.4g, $4.00 **C**: 2g, $7.00
D: 4g, $12.00

Borage *Borago officinalis* (55 days) Annual. Gloria Seigars suggests it as a great border for the vegetable garden where the dense plants smother weeds. Donna Dyrek favors it for attracting mason bees. Bears many small flowers that open blue, turn purple and then pink and make colorful additions to salads. Enjoy the cooling properties of very young leaves on a hot day. Frozen in ice cubes, it lends cucumber flavor to cold drinks. A nourishing tea for nursing mothers. Used in cough syrups. Seeds a good source of GLAs. Bushy 2–3' plant likes sun, prefers moist well-drained soil. Will self-sow; young plants are easy to move around. Survives light frosts. ~50 seeds/g. ✿ ②

4490 **A**: 0.5g, $1.80 **B**: 4g, $3.20 **C**: 16g, $5.00
D: 80g, $10.00

Caraway *Carum carvi* Feathery-leaved 2' biennial (to Zone 3) grown primarily for its seeds to season soups, stews, breads and pastries. Its leaves are also edible, though milder than the seeds. Direct seed either in early spring or late summer for seeds the second year. Likes full sun, sandy well-drained soil. Will self-sow. ~350 seeds/g. ②

4507 **A**: 0.5g, $2.00 **B**: 7g, $3.30 **C**: 28g, $5.00
D: 112g, $9.50

Catnip *Nepeta cataria* Perennial to Zone 3. "If you set it, the cats will get it; if you sow it, they won't know it." Hardy perennial, will self-sow once established. Likes rich or sandy soils, tolerates poor soil and drought. Calms mild stomach disorders, produces restful sleep and relieves fever when added to teas. Tovah Martin writes that rats are reputed to despise it, so it is sometimes used as a companion plant for melons and squashes. Researchers at Iowa St U who claim catnip is a top-notch mosquito repellant suggest rubbing crushed leaves on the skin is several times more effective than DEET. ~1,400 seeds/g. ✿ ②

4509 **A**: 1g, $2.00 **B**: 7g, $4.20 **C**: 28g, $8.00
D: 112g, $16.00

Zloty Lan German Chamomile *Matricaria recutita* Annual. Powerful yet gentle, long used to promote relaxation, chamomile is one of the most widely known herbs. Calms nerves, soothes the stomach and irritated skin. Mild sedating properties help insomnia, pain and colic. The flowers have high essential oil content, rich in chamazulene, a powerful anti-inflammatory agent with a wonderful aroma. Zloty Lan, a unique Polish tetraploid, translates as Golden Fields; there's a pun on Zloty, a monetary unit in Poland, since your beautiful golden fields will turn to money with these robust vigorous 7" plants. Likes moist well-drained soil and can be direct seeded or transplanted. Flower heads are ready to gather when the petals fall back from the center. Try using a blueberry rake to harvest them. May self sow if unharvested. ~1,750 seeds/g. ③

4511 **A**: 1g, $2.60 **B**: 3g, $4.20
C: 15g, $9.00 **D**: 45g, $20.00

Chervil *Anthriscus cerefolium* (60 days to full maturity) Annual. The Greeks referred to it as *khaire-phyllon*, or 'leaf of joy,' and carried sprigs to bless their friends. Superior slow-bolting strain grows vigorously. Delicate lacy leaves with distinct flavor good in soups, with fish or asparagus. Essential ingredient in mesclun. Direct seed before a rain in early spring or summer in rich well-drained soil with light but constant moisture. Begin harvesting leaves 6–8 weeks after sowing. In warmer locations performs best as a fall crop. Also good for microgreens. ~12,000 seeds/oz. 1/16oz packet ~750 seeds.

Chervil ②

3044 **A**: 1/16oz, $1.80 **B**: 1/8oz, $2.30 **C**: 1/2oz, $3.20
D: 1oz, $4.20 **E**: 4oz, $7.00 **K**: 1#, $20.00

Chervil - Organic ①

3045 **A**: 1/16oz, $2.30 **B**: 1/8oz, $3.60 **C**: 1/2oz, $8.00
D: 1oz, $14.00 **E**: 4oz, $48.00 **K**: 1#, $180.00

Chia *Dropped for low sales.*

Chives - Organic *Allium schoenoprasum* (80 days) Perennial to Zone 3. 1–2' hollow grasslike leaves enhance any dish with their subtle onion flavor, providing a fine treat in very early spring. Lilac-colored flowers bloom in June and July, can be eaten or enjoyed in arrangements fresh or dried. Used in Asia as a remedy for colds and flu. For best production, grow in well-drained soil and divide clumps every few years. However, nearly indestructible even with neglect in extreme conditions. Can be brought inside for the winter. ~900 seeds/g. ③

4513 **A**: 0.5g, $2.30 **B**: 7g, $5.00 **C**: 28g, $11.00
D: 112g, $36.00

CILANTRO *Coriandrum sativum*

~60 seeds/g. Used for its fresh green foliage, its edible flowers that attract beneficial insects, and its dried seeds—coriander. Essential flavoring in Indian, Chinese, Southeast Asian, Persian, North African and Latin American cooking.

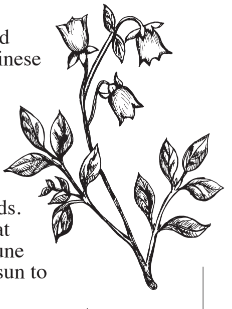
Culture: Annual grows to 2' with whitish blooms. Make succession plantings in average well-drained soil and keep watered for lushest leaf production. Thin early. In warm locations will stand longest as a fall crop. Self-sows.

Caribe - Organic (55 days) The best of the ten strains of cilantro in our previous trial. Longstanding; was only beginning to flower on July 9. In 2018's trials Caribe remained the winner in both taste and ability to hold in the heat. ④

4517 **A**: 1g, $2.10 **B**: 4g, $3.20
C: 28g, $7.00 **D**: 112g, $21.00
E: 448g, $62.00

Santo (55 days) *Hard to find healthy seed—dropped.*

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.



Codonopsis *C. pilosula* Perennial to Zone 4. Also called Poor Man's Ginseng and *dang shen* in China. Used in Chinese medicine like ginseng, but considerably easier to grow than true *Panax* ginseng. Also fun to grow as a novel ornamental. Tendrilly twining vines with small ovate leaves grow to 3–4' long by their second year. Mature vine about 5–6' long. Buds look like green peas, swell to little green balloons, flower as green bells with purple veining, then mature to five-sided-balloon seed pods. Harvest long firm sweet roots with tight skins in autumn at 4–6 years. Used to support energy levels, digestion, immune response, and to clear excess mucus from the lungs. Full sun to part shade, well-drained soil. ~3,700 seeds/g. ②

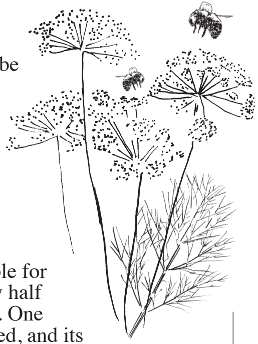
4520 **A**: *0.02g, $2.90* **B**: *0.06g, $6.30* **C**: *0.18g, $13.00*

Cumin *Cuminum cyminum* (100-115 days) Annual. After black pepper, the most widely used spice in the world. Seeds of this culinary cumin are important in flavoring Mexican and Indian cuisine and are said to aid digestion. Foliage is fragrant and ferny, somewhat like dill; but unlike dill, plants grow only 1–2'. Takes a long time to mature so start indoors in cold climates. Our thanks to Lee Cooper for suggesting that we spice up our herb selection with cumin. ~300 seeds/g. ②

4522 **A**: *0.5g, $1.90* **B**: *1g, $3.00*

DILL *Anethum graveolens*

~500 seeds/g. Name derived from the Norse *dilla*, meaning 'to lull,' as the plant is said to have soothing properties. Best known in this country for pickling, but essential for Russian, Polish and Hungarian cuisine. Annual, sometimes classed as biennial, grows to 4–5'. Self sows. Upright plant branches out from single stalk; the feathery leaves known as dill weed. Likes well-drained moderately rich soil.



Bouquet (55 days) Bouquet is usually grown for dill weed production because its leaves are sweeter and more refined than those of Mammoth. Foliage should be harvested early, before seed stalks mature. ✿

Bouquet The biggest, best, ferniest strain in our lot grow-out. ②

4530 **A**: *4g, $2.20* **B**: *28g, $4.20*
C: *224g, $14.00* **D**: *448g, $18.00*

Bouquet - Organic ③

4531 **A**: *2g, $2.50* **B**: *8g, $3.50*
C: *40g, $5.70* **D**: *200g, $14.00*

Fernleaf (55 days) 1992 AAS. A dwarf variety suitable for small gardens or patio containers, Fernleaf grows only half as tall as other varieties and is very slow to go to seed. One September, most of our May planting had not yet bolted, and its abundant piquant foliage was still suitable for harvesting. Multi-branching plants spread 18–24". ✿ ⑤

4536 **A**: *0.5g, $2.40* **B**: *1.5g, $4.30* **C**: *4.5g, $7.00*
D: *13.5g, $19.00*

Mammoth Variety generally grown for its seeds. Can also be used as dill weed, but the foliage is slightly darker, coarser and stronger-tasting than that of Bouquet. Otherwise, differences between the two in plant height and habit are barely discernible. ✿ ②

4542 **A**: *4g, $2.10* **B**: *28g, $3.80* **C**: *224g, $13.00*
D: *448g, $20.00*

ECHINACEA spp.

~250 seeds/g. Perennial to Zone 3. Wonderful late summer blooms attract butterflies and bees and make good cutflowers; dew collects in the spiral mandala coneheads.

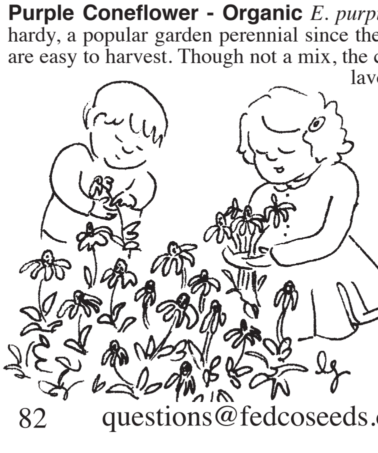
Possibly the best-known of the medicinal herbs, widely used as an immune-system stimulant. Species contain slightly differing constituents, but all are antibacterial and antiviral. At least 14 native North American nations used Echinacea for similar purposes: sore throat, toothache, infection, wounds, snake bite and skin disorders. Joanna Linden likes to tincture flowers and leaves in August and use the same alcohol to tincture seeds and third-year roots in October.

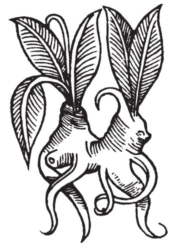
Culture: Start indoors at 70–75°, germinates in 15–20 days. Grow on at 60–65°. Set out 18–24" apart.

Narrow-Leaved *E. angustifolia. Dropped for lack of sales.*

Purple Coneflower - Organic *E. purpurea* Large, showy, vigorous and hardy, a popular garden perennial since the early 1700s. Large fibrous roots are easy to harvest. Though not a mix, the colorful flowers vary from rose to lavender to purple. Long downward-curving petals around large spiny copper-colored centers. Broad toothed leaf. Easy-to-grow, 2–4' tall, native to a wide range of habitats, from Appalachian woods to midwest prairies. Often self-sows. ✿ ②

4547 **A**: *1g, $2.60*
B: *4g, $4.60*
C: *16g, $8.00*
D: *48g, $19.00*





Elecampane - Organic *Inula helenium* Perennial to Zone 3. Also known as Horseheal, Wild Sunflower and Elf Dock. Large dramatic plant grows 5–8' with 2–3" bright yellow rayed flowers, blooming May to August. An excellent lung tonic. Important to the ancient Greeks, said to have sprung from the tears of Helen of Troy, thus its botanical name. Mucilaginous root relaxes lungs and helps clear mucus, calms cough. Antibacterial and antifungal, also used for asthma, bronchitis, cough and flu, especially in children. Helpful for scabies, herpes and other skin disorders (an old name is Scabwort). Plant in heavy moist well-drained loam with generous helpings of compost. Harvest roots mid-fall. ~1,600 seeds/g. ①

4550 **A**: *0.1g, $2.60* **B**: *0.3g, $4.40*
C: *1.2g, $8.00* **D**: *3.6g, $13.00*

Seed Fennel - Organic (65 days) *Foeniculum vulgare* Annual. This fennel, which doesn't bulb, puts all its energy into making seeds. Although used similarly to anise in cooking, fennel seed is much more medicinal, aiding digestion while reducing flatulence and also soothing bronchial coughs. The seeds shed readily when mature, so you may want to bag seed heads on the plant to contain them. It's easy to grow, although be aware that too much moisture at bloom time can prevent the formation of a good seed crop. Harvested after the flowers turn brown, seeds will continue to dry if spread in a single layer on a screen. In about two weeks they should be fully dried and ready for the spice rack. ②

4560 **A**: *0.5g, $2.20* **B**: *3g, $3.50* **C**: *9g, $6.00*
D: *27g, $14.00*

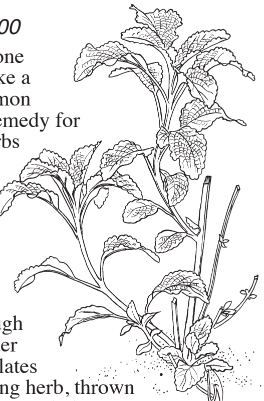
Bulbing and leaf Fennel: see p. 26.

Feverfew - Organic *Tanacetum parthenium* Perennial to Zone 4, maybe 3. Strongly scented bushy 18" plant with beautiful daisy-like white blooms good in bouquets. A tea from the chrysanthemum-like leaves was traditionally used as a relaxant. Chewing regularly on a bitter leaf or two is said to prevent migraines. Sow indoors, set out in average well-drained soil when seedlings have four true leaves. Self-sows. ~5,000 seeds/g. ①

4572 **A**: *0.1g, $2.70* **B**: *0.4g, $4.50* **C**: *2g, $9.00*
D: *8g, $25.00*

Garlic Chives *Allium tuberosum* Perennial to Zone 4. Also called Chinese chives or Chinese leeks. Known as *jiu cai* in China. Grows like chives, 1' tall, but has flat strap-like leaves that taste like garlic and can be used as a garlic substitute in salads and sautéed vegetables. White flowers are edible, long-lasting in bouquets and good in dried arrangements. Sow thinly in spring, harvest sparingly till plants are established; after that they are vigorous and self-sowing. Protect in cold areas. Easier than chives to bring indoors for winter. Seed is very short-lived. ~210 seeds/g. ②

4577 **A**: *0.5g, $2.20* **B**: *14g, $3.70*
C: *56g, $9.00* **D**: *168g, $22.00*



Horehound *Marrubium vulgare* Perennial to Zone 3. Bushy 2' stand of grey-green wooly leaves make a good border. Horehound candies were once common for soothing coughs and the tea makes a strong remedy for coughs and lung congestion. One of the bitter herbs of Passover. Transplant while seedlings are still small or direct seed into light dry sandy soil. ~950 seeds/g. ③

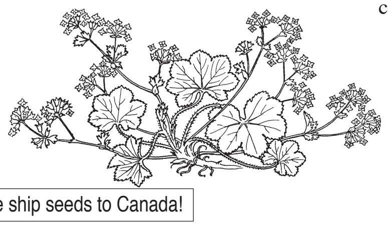
4580 **A**: *0.2g, $2.10* **B**: *1g, $3.70*
C: *4g, $7.00* **D**: *12g, $13.00*

Hyssop *Hyssopus officinalis* Perennial to Zone 3. Beautiful aromatic border plant that produces spikes of indigo flowers, traditionally used in cough syrups. Can be planted with rosemary and lavender for a colorful and fragrant effect. Its aroma stimulates alertness and mental clarity. Was used as a strewing herb, thrown on floors to mask odors. Add slightly bitter leaves to salads, soups and stews, or use as an expectorant tea. People with epilepsy and pregnant women avoid use. Dry light or sandy soil. Normally hardy to Zone 3, but we have had significant losses in very harsh winters. ~850 seeds/g. ✿ ②

4582 **A**: *0.5g, $2.10* **B**: *4g, $3.50* **C**: *16g, $7.50*
D: *48g, $15.00*

Lady's Mantle *Alchemilla mollis* Perennial to Zone 3. Softly hairy wavy-edged leaves unfold like fans in early spring and form loose 12–18" mounds. Leaves hold rain and dew, sparkling in the early morning light. Alchemists believed the collected dew was the purest water and used it in their preparations; thus its genus name. Bears large loose sprays of tiny greenish-yellow flowers from early summer onward. Makes a good border and ground cover in shady locations. Astringent and regenerative, has a long history as a remedy for women. Excellent for eco-dying: leaves make purple with a charcoal cast and flowers add some speckling. Likes average well-drained soil and moisture; tolerates most conditions. Seed is short-lived. Oscillating temperatures aid germination which requires 21–30 days. ~2,600 seeds/g. ③

4584 **A**: *0.05g, $2.30* **B**: *0.2g, $3.70*
C: *1g, $8.00* **D**: *4g, $14.00*

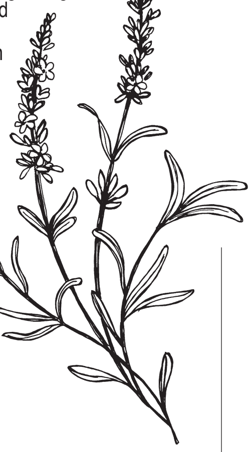


We ship seeds to Canada!

LAVENDER *Lavandula angustifolia*

~1,000 seeds/g. Famous for centuries for its sweet soothing lasting scent. Flowers used dried in sachets, wreaths and arrangements, and as a tea for headache or exhaustion. Hardy perennial reaching 3', woody shrublike plant with grey-green needle-like foliage and lavender flowers growing on long-stemmed spikes. Attracts small pollinating insects and syrphid flies.

Culture: Likes well-drained alkaline sandy soil. Germinates in 21 days at 60–70˚.



Lavender - Organic Also known as English lavender. Texts claim hardy to Zone 5, but our patch in Zone 3 survived ten straight winters until a particularly hard one. ✿ ③

4585 *A: 0.2g, $2.30* *B: 1g, $4.20*
C: 5g, $11.00 *D: 20g, $27.00*

Vicenza Blue Perennial to Zone 5. More compact habit than common lavender with deeper green leaves and a more powerful, less sweet, aroma. 1' plants have bold clustered flower spikes with deep color from mid-July to early September. Flowers the first year without vernalization. Long-day perennial needs full sun. ✿ ②

4586 *A: 0.03g, $3.20* *B: 0.12g, $7.00*
C: 0.6g, $24.00

Lemongrass *Cymbopogon flexuosus* Annual. Nikos searched for years for this culinary strain of lemongrass, native to Southeast Asia, used in food and medicine there for millennia, and adopted worldwide for the bright lemony flavor it imparts. Coarse grass sets 6–12 harvestable stalks, looking something like pencil leeks, slightly bulbous at the base. Harvest the tough stalks low; the plants will re-grow, though probably only to 3' here in Maine rather than the 6' achieved in the tropics. Use chopped or ground, fresh, dried or frozen, add to soups, sauces and stir-fries, or make into a delicious medicinal tea to aid digestion. Holli Cederholm reported that it's well worth growing for market: her customers raved about its quality compared to the supermarket's, and one used it for infusing cocktails. Perennial in Zones 9-11, grown as an annual in our climate unless potted up and brought indoors for the winter. Not a great germinator; 40% is considered good. Sow indoors and transplant out 8–12" apart. ~2,000 seeds/g. ③

4587 *A: 0.1g, $3.50* *B: 0.3g, $8.00* *C: 1.2g, $21.00*
D: 6g, $40.00

Lemon Balm *Melissa officinalis* Perennial to Zone 4. The Greek word *Melissa* means 'honeybee'; the 2' plant in flower attracts them. Gather its yellow-green scalloped lemony leaves before plants flower. Delicious in salads, as a tea, with fruit, or dried for sachets. Flowers are edible. Essential oil of lemon balm smells fabulous and is highly effective against cold sores, but is very expensive. Steep multiple batches of leaves in olive oil to make an infused oil, one of the many ways to enjoy this relaxing calming comforting uplifting herb all winter. Likes very well-drained fertile soil; wet ground may winterkill it more than cold. However, tends to self-sow in the same years that the roots winterkill. ~1,800 seeds/g. ✿ ②

4588 *A: 0.3g, $2.20* *B: 3g, $4.00* *C: 15g, $7.20*
D: 45g, $16.00

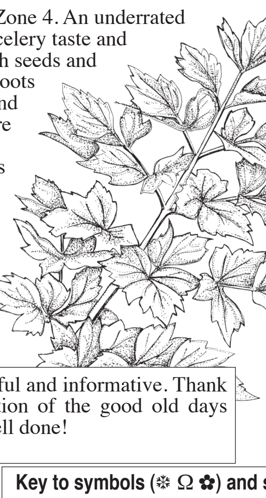
Lemon Mint *Monarda citriodora* An annual member of the bee balm genus in the mint family. Native to Appalachia and related to Oswego Tea. The tiered pinkish-purple flower spikes of this showy 2–3' plant are long-lasting in fresh bouquets and can be dried for everlasting arrangements. Its lemon-scented leaves are delicious and commonly used to impart a coarse mint flavor with a hint of oregano to tea. Inhale the steam to relieve cold symptoms. Best in light moist soil. ~1,800 seeds/g. ✿ ②

4589 *A: 1g, $2.10* *B: 7g, $3.90* *C: 28g, $7.00*
D: 84g, $20.00

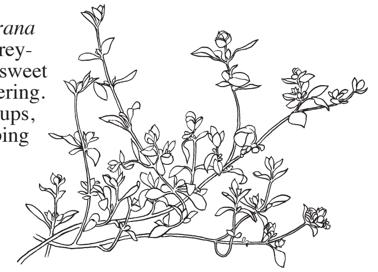
Licorice *Dropped, but you can order plant stock from our Trees catalog.*

Lovage *Levisticum officinale* Perennial to Zone 4. An underrated herb with many uses. Leaves have a strong celery taste and can flavor soups, stews and casseroles. Crush seeds and add to bread and pastries; candy stems and roots in sugar syrup. Said to restore the appetite and revive the love of life. Second-year plants are best for drying. Formerly used to mask the bitter herbs in medicinal concoctions. Makes a dramatic 3–6' architectural element in a decorative border. Umbelliferous flowers attracts beneficial insects, Likes moist rich deep well-drained soil. ~140 seeds/g. ✿ ②

4592 *A: 0.5g, $2.10*
B: 4g, $4.50
C: 16g, $9.00
D: 48g, $14.00



> The 2019 catalog was received. It is beautiful and informative. Thank you... Bringing back the memory/connection of the good old days without internet and social media. A job well done!
> – Ying Mei Cheng, Woodside, NY



Sweet Marjoram *Origanum majorana* (80-95 days) Annual. 1' plant with grey-green rounded leaves of enchanting sweet fragrance. Cut often to prevent flowering. Use fresh or dried. Adds flavor to soups, stews and stuffings. Subject to damping off; do not overwater. Likes well-drained dry soil. ~4,000 seeds/g. ②

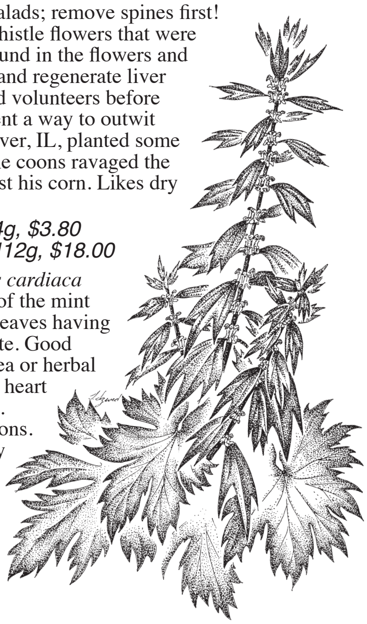
4615 *A: 0.5g, $2.50*
B: 2g, $4.50
C: 8g, $7.00
D: 32g, $17.00

Marshmallow - Organic *Althaea officinalis* Perennial to Zone 4. Cousin to the hollyhock, used to soothe and soften irritated skin and membranes and to relieve stuck hacking coughs. Also mildly stimulates white blood cell production and relieves urinary tract infections and prostate problems. Enjoy the attractive flowers of this showy 4–6' plant through the summer or eat the velvety leaves in salads. All mallows contain soothing mucilage in the root, and marshmallow has the most, so it makes a great home-garden substitute for slippery elm. Harvest roots in autumn of the third year. For tea, steep roots in cold water for several hours rather than boiling. Plant in cool moist soil. Will self-sow. ~600 seeds/g. ①

4619 *A: 0.4g, $2.30* *B: 1.2g, $4.50*
C: 6g, $10.00 *D: 24g, $22.00*

Milk Thistle - Organic *Silybum marianum* Annual. Named for the bold white splashes on its glossy leaves, said to be from Mary's milk. Fast-growing, 3–5', with leaves up to 8x24". Native to the Mediterranean. Use young leaves cooked or in spring salads; remove spines first! Flower stalk puts out large purple thistle flowers that were eaten like artichokes. Silymarin, found in the flowers and seeds, has been used to strengthen and regenerate liver tissue. Will self-sow; pull unwanted volunteers before they get big and prickly. May present a way to outwit raccoons: Chris Mazur of Apple River, IL, planted some around his sweet corn patch, and the coons ravaged the rest of his garden, but did not molest his corn. Likes dry soil, very tolerant of drought. ②

4630 *A: 1g, $2.00* *B: 4g, $3.80*
C: 28g, $8.80 *D: 112g, $18.00*



Motherwort - Organic *Leonurus cardiaca* Perennial to Zone 3. This member of the mint family grows 2–4' with dull green leaves having a pungent odor and rather bitter taste. Good bee plant. Pick flowering tops for tea or herbal tincture. Believed to strengthen the heart muscle and relieve nervous tension. Used by women during life transitions. Readily self-sows even in relatively poor soil; pull up unwanted first-year basal rosettes before they put out their spiky flower stalk the second year. ~1,200 seeds/g. ✿ ①

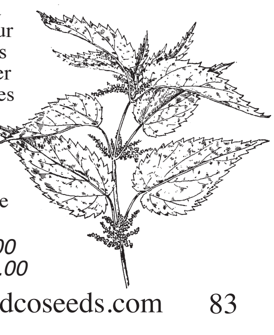
4640 *A: 0.2g, $2.30*
B: 1g, $5.00
C: 3g, $11.00
D: 9g, $25.00

Yellow (White) Mustard Seed *Sinapis alba* (70-85 days) Annual. The variety of mustard most familiar to American palates, but pallid without the addition of turmeric. If you plant a scant dozen, they should yield enough to make at least a couple batches of prepared mustard. Or alternately, toast the seeds in a fry pan until they pop, and then grind into spicy mixtures. As easy to grow as the leafy mustards. Harvest seeds as soon as pods begin to turn tan. Pods open once the seeds are dry. Spice up those cold winter nights! *Cannot ship sizes C and D to the Willamette Valley.* ~145 seeds/g. ③

4642 *A: 1.5g, $1.90* *B: 6g, $4.00*
C: 24g, $8.00 *D: 96g, $25.00*

Stinging Nettle - Organic *Urtica dioica* Perennial to Zone 2. Biodynamic gardeners use nettles to increase the potency of neighboring herbs, and to stimulate humus formation. An indicator of very fertile soil where it volunteers. Young shoots and leaves are delicious steamed as spring greens, very high in minerals and protein. Also makes a great hair rinse or dry chicken feed. Choose your spot carefully; the spreading rhizomes as well as the leaves can sting, and the plants will take over any patch of annuals. Cooking or drying removes the sting. Plant in damp rich soil with high nitrogen content; especially likes composted manure piles or the leaky side of your lushest compost bin. Chill the seed before sowing to improve germination. Takes 10–14 days to come up and grows 3–6'. ~6,000 seeds/g. ①

4644 *A: 0.2g, $2.40* *B: 0.6g, $4.00*
C: 2.4g, $9.00 *D: 7.2g, $17.00*

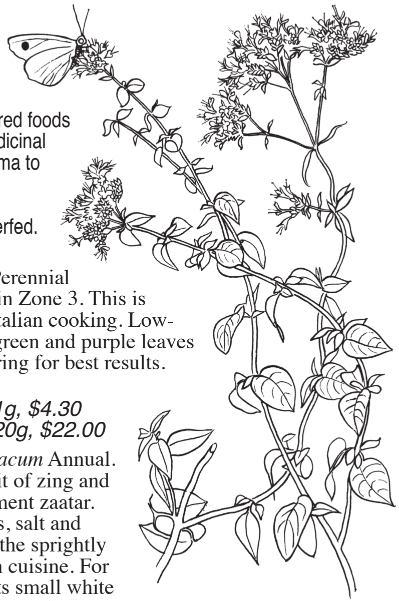


Key to symbols (❊ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

OREGANO *Origanum* spp.

The oregano genus has more than 50 species. The ancient Greeks gave it its name, meaning 'joy of the mountains.' These fragrant plants grow on steep rocky alkaline hills, filling Mediterranean mountainsides with their joyful cheer and intense scent. Not only has oregano flavored foods for thousands of years, but it also has medicinal uses, from relieving rheumatism and asthma to decongesting stuffy head colds.

Culture: Likes sun and light well-drained alkaline soil. Will lose potency if soil is overfed. Harvest when it is beginning to flower.



Greek Oregano *O. heracleoticum* Perennial to Zone 4, but survives some winters in Zone 3. This is the true culinary herb for Greek and Italian cooking. Low-growing perennial with fragrant dull green and purple leaves and white flowers. Start indoors in spring for best results. ~9,000 seeds/g. ②

4648 *A*: 0.2g, $2.50 *B*: 1g, $4.30
C: 5g, $7.20 *D*: 20g, $22.00

Zaatar Oregano - Organic *O. syriacum* Annual. This bushy tender oregano carries a bit of zing and is a necessary ingredient in the condiment zaatar. Mix with sumac, toasted sesame seeds, salt and sometimes a few other herbs to make the sprightly topping so essential to Middle Eastern cuisine. For most aromatic flavor, harvest before its small white flowers appear. Start seeds indoors or sow them directly in the ground just prior to the last spring frost. ~4,650 seeds/g. ③

4649 *A*: 0.02g, $3.30 *B*: 0.08g, $6.00
C: 0.24g, $10.00

PARSLEY *Petroselinum crispum*

~500-1100 seeds/oz. Hardy annual in the North. A shining star of Jason Kafka's wholesale program. He grows Double Curled, Krausa and Plain Leaf, moving a few hundred bunches per week and says that if you have the market, these may bring more $ per row foot than any other crop. When these hardy biennials bolt, he gets a bonus by using the umbels as filler for flower bouquets.

Culture: Very hardy. Parsley seed is short-lived; test old seed before sowing. Very slow to germinate (up to 30 days). Soaking seed 8–12 hours will hasten germination. Do not allow soil surface to dry out.

Gigante d'Italia (70 days) We were wowed by its early seedling vigor and rich sweet flavor. Flat-leaved heirloom hails from northern Italy and grows to 1'. ❄ ④

3158 *A*: $^{1}/_{16}$oz, $1.90 *B*: $^{1}/_{8}$oz, $2.60 *C*: $^{1}/_{2}$oz, $3.60
D: 1oz, $5.00 *E*: 4oz, $8.00 *K*: 1#, $22.00

Double Curled (75 days) Double-curled with long upright stiff stems. Holds color well all season, tolerates heat and repeated cuttings. Gene and Joanna plant huge amounts for parsley pesto. ❄ ③

3166 *A*: $^{1}/_{16}$oz, $1.80 *B*: $^{1}/_{8}$oz, $2.30 *C*: $^{1}/_{2}$oz, $3.50
D: 1oz, $4.50 *E*: 4oz, $8.00 *K*: 1#, $23.00

Krausa - Organic (75 days) "Krausa parsley gave us another stellar performance last year," reported Bryan O'Hara in CT. "Great flavor, too," added Evelyn Durand of Marysville, CA. Stems so sweet they taste almost like a miniature celery: thick, solid, crunchy, yummy. Dense triple-curled medium-green parsley holds its color without developing white or brown spots. Taller, thicker stems than Double Curled. "Never before had a parsley with such delicious stems," raves trialer Donna Dyrek. Can stand the heat yet still beautiful and juicy in October. ❄ ④

3169 *A*: $^{1}/_{16}$oz, $4.20 *B*: $^{1}/_{8}$oz, $7.20 *C*: $^{1}/_{2}$oz, $20.00
D: 1oz, $36.00

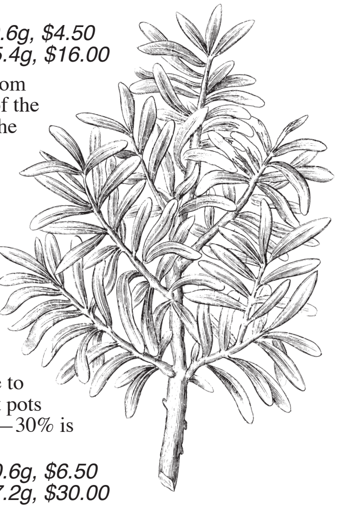
Plain Leaf - Organic (78 days) Smooth and shiny large wide dark green flat leaves. Upright with vigorous growth. We've called it **Dark Green Italian** for years. This is the same cultivar. ❄ ③

3170 *A*: $^{1}/_{16}$oz, $2.40 *B*: $^{1}/_{8}$oz, $3.60 *C*: $^{1}/_{2}$oz, $6.00
D: 1oz, $9.00 *E*: 4oz, $22.00 *K*: 1#, $70.00

Parsley Root: see p. 58.

Pennyroyal *Mentha pulegium* Perennial to Zone 4-5. Native to Europe, across the Mediterranean into Persia. Hardy aromatic ground cover of the mint genus notorious for its insect-repellent properties: can be used to ward off mosquitoes and to repel fleas from pets. Makes a potent tea. Pennyroyal's distilled oil can be toxic, but the tea rinse is safe for external use. Caution: Pregnant women should not use. Plant 6" apart to make a dense mat. The plants creep with only the lavender flower stalks rising above the ground. Likes rich well-drained soil with good moisture. Mulch for winter protection. ~12,000 seeds/g. ③

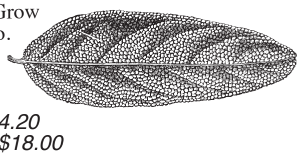
4651 *A*: 0.2g, $2.20 *B*: 0.6g, $4.50
C: 1.8g, $8.00 *D*: 5.4g, $16.00



Rosemary *Rosmarinus officinalis* From the Latin *ros marinus* meaning 'dew of the sea,' a reference to its native habitat, the Mediterranean coasts. Beloved tender perennial (to Zone 8) growing to 3–4'. Cannot withstand temperatures below 17°, may be overwintered indoors if kept cool and moist. Try near a cool basement window and keep misted. Otherwise, grow it as an annual and dry the leaves for winter cooking. Dark grey-green needle-like leaves impart a robust resiny flavor. Rosemary clippings are said to repel slugs. Blossoms range from deep blue to pale pink. Likes dry alkaline soil; peat pots are too acidic. Not a good germinator—30% is average. ~800 seeds/g. ②

4656 *A*: 0.2g, $3.00 *B*: 0.6g, $6.50
C: 1.8g, $10.00 *D*: 7.2g, $30.00

Broadleaf Sage *Salvia officinalis* Perennial to Zone 4. Grows up to 3', with fuzzy grey-green oblong leaves and blue flowers. Used fresh or dried. Tasty in stuffing blends, with eggs, cheese, poultry, pork. Sage tea dries up mothers' milk and helps reduce hot flashes. Likes well-drained rich soil with good nitrogen content. Grow woody with age; replace every 3 years or so. Only one of our five plants survived the harsh winter of 2003–4. Did not mind the tough 2014-15 winter. ~125 seeds/g. ✿ ④



4664 *A*: 1g, $2.50 *B*: 4g, $4.20
C: 16g, $8.00 *D*: 48g, $18.00

White Sage *Dropped for lack of interest.*

Summer Savory *Satureja hortensis* (70 days) Annual grows to 1$^{1}/_{2}$' with narrow dark green leaves and lavender flowers. Cut often during growing season, before blossoms appear. Sow after last frost in well-drained soil next to beans, their complement in the kitchen as well. Use with dry or green beans, rice, stuffings, or in onion soup. Left to bloom, it is beautiful in fall with dark purple foliage and lavender flowers. ~1,700 seeds/g. ②

4672 *A*: 1g, $2.00 *B*: 14g, $4.30 *C*: 56g, $8.00
D: 112g, $12.00

Winter Savory *S. montana* Perennial to Zone 3. Leaves shinier and thicker, stronger and more pungent than summer savory. Used to flavor dry beans or sauerkraut, winter soups and stews. Hardy bushy plants grow 6–12", thriving in dry poor soil. Start indoors 8–10 weeks before last spring frost date; transplant after danger of frost. Makes an attractive border with its tiny green leaves and light lilac flowers. Also used as a tea to calm indigestion or as a gargle for sore throat. ~2,000 seeds/g. ③

4674 *A*: 0.1g, $2.10 *B*: 0.4g, $3.90 *C*: 2.4g, $7.50
D: 9.6g, $13.00

Schisandra *Dropped, but you can order plant stock from our Trees catalog.*

Baikal Skullcap *Dropped for slow sales.*

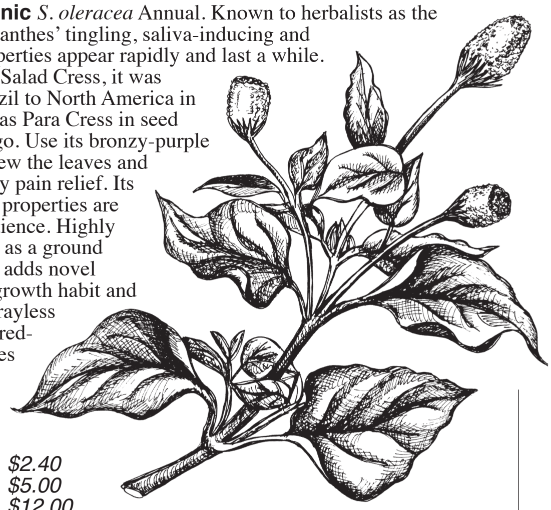
> Your catalog has been a bright light in the dark of winter for almost 40 years. Thank you for caring for seeds, farmers and gardeners.
> – Mary Thomas, Weed, CA

> We stopped ordering from you years ago and now purchase from [another company] as they share our values and we feel comfortable allowing our children to view their catalog. Please remove us from your list.
> – (name withheld)

Skullcap - Organic *S. lateriflora* Drat! *Not available in 2020.*

Spilanthes - Organic *S. oleracea* Annual. Known to herbalists as the toothache plant. Spilanthes' tingling, saliva-inducing and mouth-numbing properties appear rapidly and last a while. Fun! Also known as Salad Cress, it was introduced from Brazil to North America in the 1860s and listed as Para Cress in seed catalogs a century ago. Use its bronzy-purple leaves in salad or chew the leaves and flowers for temporary pain relief. Its immune-stimulating properties are giving it a wider audience. Highly frost-sensitive. Used as a ground cover in the south, it adds novel beauty with its low growth habit and its cute eyeball-like rayless yellow flowers with red-orange centers. Makes a colorful border planting in fertile moist soil. ~3,000 seeds/g. ① **BACK!**

4683 ***A****: 0.02g, $2.40*
B*: 0.08g, $5.00*
C*: 0.32g, $12.00*

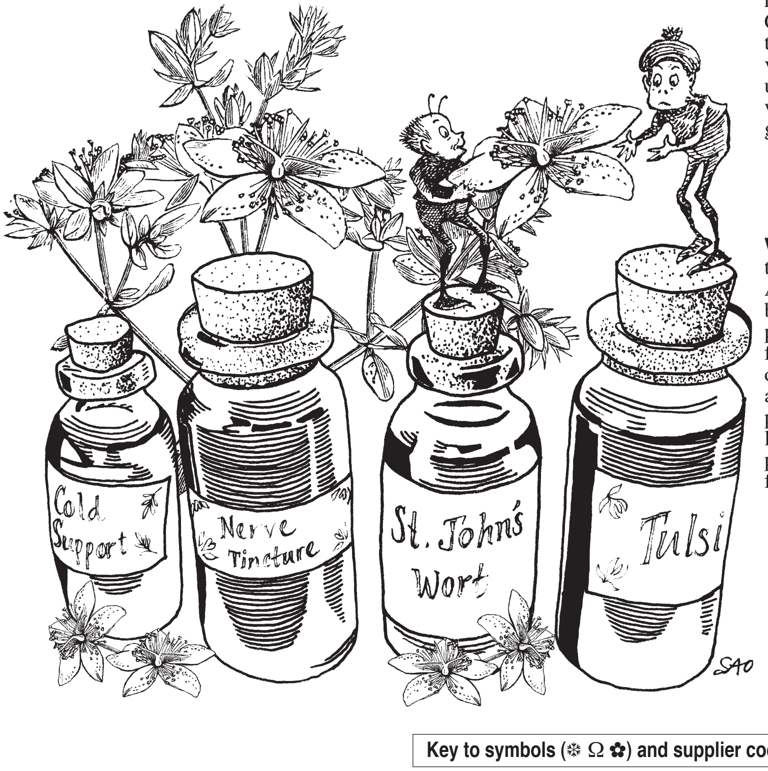


Stevia *S. rebaudiana* (100-120 days) Treat as an annual or bring indoors for winter. As sweet as it gets, stevia is several hundred times sweeter than sugar, but without the calories. It is used fresh, dried, powdered or in a liquid as a sugar substitute. Stevia grows into a bushy 2' plant with serrated leaves and white flowers in late summer. Pinch it back for greater bushiness and higher yields. An erratic and finicky germinator, the seed needs light. Likes heat so should not be transplanted outdoors until nights stay above 50°. Work compost into well-drained soil or raised beds. Ironically, it retards plaque and inhibits tooth decay. Seed has short longevity; order only a 1-year supply. ~3,100 seeds/g. ③

4684 ***A****: 25 seeds, $3.10* ***B****: 100 seeds, $8.60*
C*: 500 seeds, $32.00*

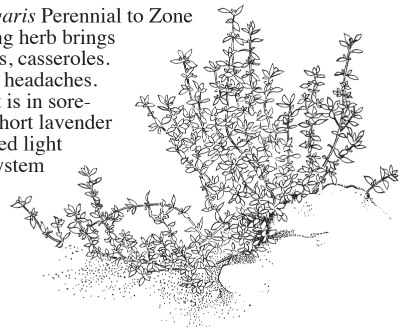
Topas St Johnswort *Hypericum perforatum* Perennial to Zone 3. Pretty yellow flower of fields and meadows turns tinctures and oils deep red. Used as tea, tincture or infused oil for many nerve disorders, from neuralgia and sciatica to mild depression, seasonal affective disorder and chronic exhaustion. The infused oil is also cooling to sunburn and cuts, soothing to strained joints and muscles. Frequent use can cause photosensitivity. Compared to generic St Johnswort, Topas is an improved strain for commercial production, much earlier (blossomed first year from seed), more floriferous with a higher content of hypericin. Seedlings grow slowly, top out at 1–3'. Prefers well-drained dry soil; very drought tolerant but essential oil levels increase with some moisture. *We cannot ship to North Dakota or California where it is considered a noxious weed*. ~7,000 seeds/g. ③

4686 ***A****: 0.1g, $2.20* ***B****: 0.5g, $5.00*
C*: 2g, $9.00* ***D****: 8g, $21.00*



German Thyme *Thymus vulgaris* Perennial to Zone 4. Creeping 10–12" mat-forming herb brings depth of flavor to soups, gravies, casseroles. Said to calm the nerves, soothe headaches. As good in salad dressings as it is in sore-throat remedies. Bees love its short lavender flower spikes. Likes well-drained light dry alkaline soil. Its fine root system makes thyme difficult to move around the garden. ~4,000 seeds/g. ✿ ②

4687 ***A****: 0.2g, $2.40*
B*: 3g, $5.50*
C*: 15g, $9.00*
D*: 45g, $19.00*

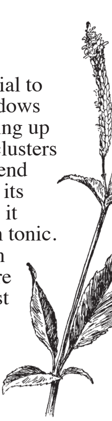


Valerian *Valeriana officinalis* Perennial to Zone 3. Known as Nature's Tranquilizer or Herbal Valium, valerian root is used to reduce tension and anxiety, alleviate insomnia, and relieve muscle spasms and cramping. Avoid high doses for prolonged periods. Harvest roots in the fall of the second or later year. Early Greeks referred to valerian as *phu* (like our "phew") because of the distinctive fetid musky smell of the roots, but locally called Garden Heliotrope for the wonderful fragrance of its flowers. Tall leafy 3–5' plants with clusters of honey-scented pale pink flowers. Remove flowers to hasten root development. Plant in moist fertile soil about 1' apart. ~800 seeds/g. ③

4690 ***A****: 0.1g, $2.30*
B*: 0.6g, $4.20*
C*: 2.4g, $6.60*
D*: 7.2g, $11.00*

Blue Vervain - Organic *Verbena hastata* Perennial to Zone 3. Grows naturally in moist thickets and meadows and will do well in similar garden conditions, sending up many terminal spikes of bristly blue-violet flower clusters the entire season. Although scraggly, 5–6' plants blend very well with many kinds of flowers by stretching its spikes amongst them. Herbalist Gail Edwards finds it "a powerful spiritual presence" and nervous system tonic. Similar to *V. officinalis*, but more alterative, vervain acts mainly on the liver and lungs. Its roots are more active than its leaves. Likes light well-drained moist soil. ~2,500 seeds/g. ①

4692 ***A****: 0.1g, $2.50*
B*: 0.4g, $4.20*
C*: 4g, $15.00*
D*: 12g, $34.00*

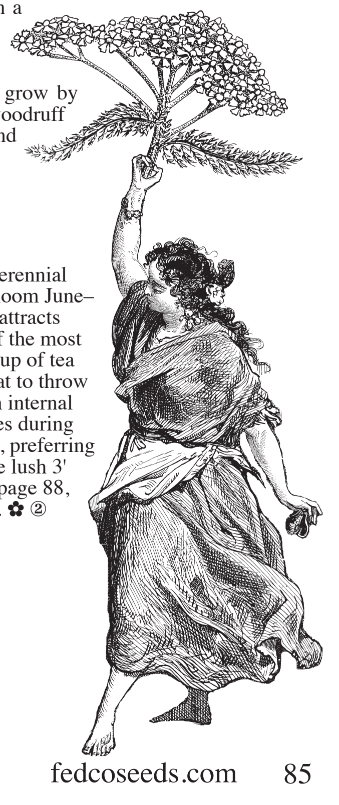


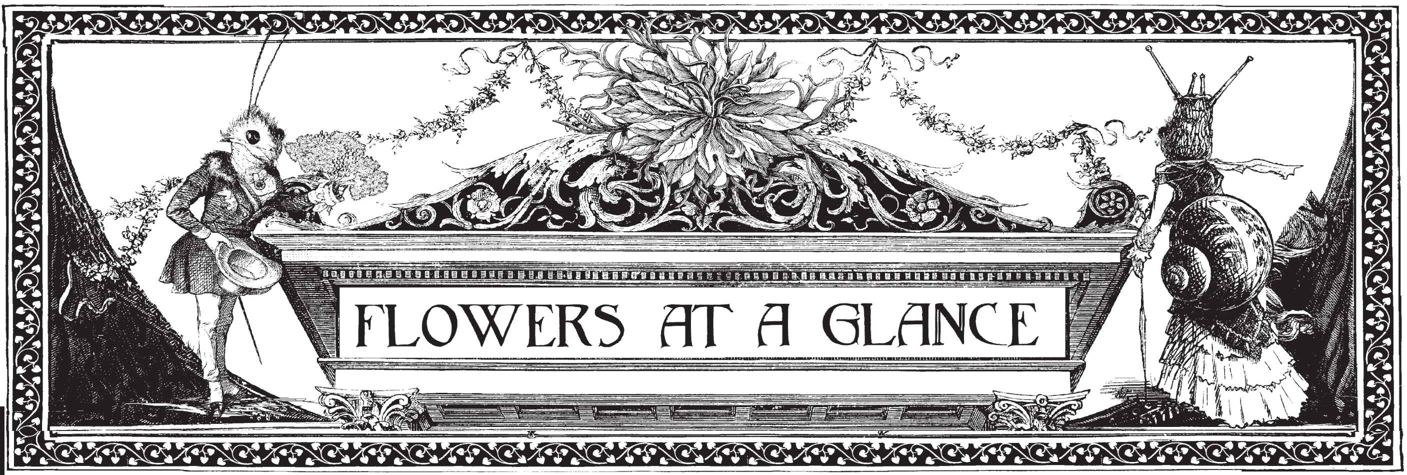
Sweet Woodruff *Galium odoratum* Perennial to Zone 5. A lovely ground cover for shaded areas, its whorls of pointed leaves covered with clusters of tiny snowy-white spring flowers. Vanilla-scented leaves are essential in Maybowl, a traditional German punch, and also used in potpourris. Said to be helpful for migraine, nervous conditions and stomach pain. Drying increases its clover fragrance. A classic strewing herb in the Middle Ages used to purify the church, dining hall and bedrooms with its coumarin-rich fragrance. Sow outdoors in a woodland site or in a heavy layer of well-rotted leaf mulch. Can be very slow to germinate—up to 200 days—and then may not be visible right away because the plants grow by underground rhizomes. Be patient—woodruff will appear the following spring and grow 6–8" tall. ~160 seeds/g. ②

4698 ***A****: 0.2g, $2.60*
B*: 0.6g, $5.00*
C*: 2.4g, $9.00*
D*: 7.2g, $19.00*

White Yarrow *Achillea millefolium* Perennial to Zone 2. Flat-topped white flowers bloom June–August with an odd alluring scent that attracts bees, butterflies and beneficials. One of the most popular herbs for colds and flu. A hot cup of tea from leaves and flowers induces a sweat to throw off heat and toxins. Also used to stanch internal and external bleeding. Avoid large doses during pregnancy. Grows 1–2', spreads slowly, preferring lean soil. Rich garden soil may produce lush 3' plants that need staking. See Achillea, page 88, for ornamental yarrow. ~5,000 seeds/g. ✿ ②

4699 ***A****: 0.1g, $2.00*
B*: 1g, $4.20*
C*: 14g, $8.00*
D*: 56g, $20.00*





FLOWERS AT A GLANCE

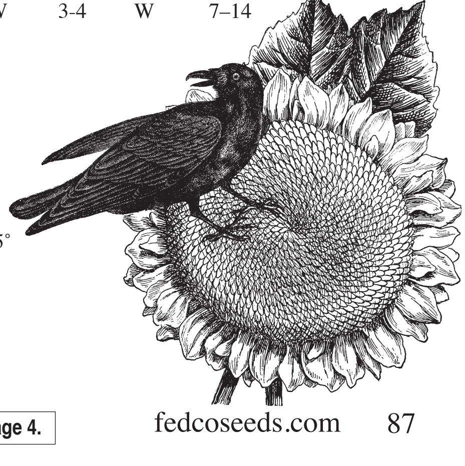
Name	item#	*Botanical Name*	ABP	height	uses	season	sow	start	temp	days	notes
Achillea (Yarrow)	4803ff	*Achillea spp.*	P	18-24"	BDC	ES-F	DS DF TP	8-10	C	10–14	Lt
Ageratum	4811ff	*Ageratum houstonianum*	A	24"	BCD	ES-F	TP	6-8	W	4–6	◗S
Alyssum	4821	*Lobularia maritima*	A	2-4"	FBW	ES-F*	DS TP	5-6	55-70	8–14	◗S
Amaranth	4831ff	*A. cruentus, gangeticus*	A	3-6'	CNDE	MS-F	TP DS	6-7	W	10–14	◗Lt
Aster, New York	4849	*Symphyotrichum novi-belgii*	P	36-48"	B	LS-F*	TP	6-8	M	14–36	Ch2w
Aster, China	4852ff	*Callistephus chinensis*	A	12-30"	BC	ES-F	TP	12-14	W	10–21	◗
Baby's Breath	4861	*Gypsophila paniculata*	P	24-40"	BDC	MS-LS	TP DS	8-10	M	14–21	S
Bachelor's Button	4871ff	*Centaurea cyanus*	A	24-36"	BC	ES-F*	DW TP	8-9	C	7–14	◗Cv
Balloon Flower	4881	*Platycodon grandiflorus*	P	30-42"	CB	MS-LS	TP	6-8	M	15–30	S
Balsam	4883	*Impatiens balsamina*	A	24"	B	MS-F	DW		W	8–10	◗S
Bee Balm	4886	*Monarda didyma*	P	30"	BCD	MS-LS	DW TP	8-10	C/M	14–21	◗Lt
Begonia	4889	*Begonia x tuberhybrida*	TP/A	8-12"	BW	ES-LS	TP	12-14	W	14–28	●
Bells of Ireland	4896	*Moluccella laevis*	A	30"	DBN	MS-F	TP	6-8	C	12–21	◗S, Ch5d50°
Bouncing Bet	5920, p 90	*Saponaria officinalis*	P	1-3'	BGF	MS	TP	8-10	M	14–28	◗St
Broom Corn	5437, p 100	*Sorghum bicolor*	A	7-11'	D	LS-F	DW		W	7–10	
Bupleurum	4903	*Bupleurum rotundifolium*	A	2'	DCN	ES-F	TP	8-10	C	14–21	◗
Butterfly Weed	4906	*Asclepias tuberosa*	P	18-30"	BCN	ES-LS	DS DF		W	14–28	Ch4w34-40°
Calendula	4911ff	*Calendula officinalis*	A	18-24"	BDCE	ES-F*	DS TP DF	6-8	C	4–10	Cv
Campanula	4930	*Campanula carpatica*	P	6-8"	BGW	ES-F	DW TP	8-10	M	20–30	◗
Canary Creeper	4932	*Tropaeolum peregrinum*	A	8'	BV	LS-F	DW TP	6-8	C	7–14	◗Cv
Catmint, Persian	4937	*Nepeta mussinii*	P	12"	BG	Sp-MS	TP DS DF	6-8	C	10–14	
Celosia, Plume/Spike	4950ff	*C. a. plumosa, spicata*	A	3-6'	DCNB	LS	TP	8-10	W	10–14	
Cerinthe	4962	*C. major purpurescens*	A	12-18"	B	MS-F*	TP DW	6-8	W	7–14	
Chinese Forget-Me-Not	4965	*Cynoglossum amabile*	A	18"	B	MS-LS	DW TP	6	M	5–10	
Chinese Lantern	4968	*Physalis alkekengi*	P	24"	DNC	MS-F	TP DF	8	W	14–21	◗S, invasive
Cleome	4982ff	*Cleome hassleriana*	A	48"	BN	ES-LS	TP DW	4-6	W	7–14	Ch, S
Coleus	4992	*Plectranthus scutellar.*	TP/A	10-12"	WBN	MS-F	TP	8-10	M	10–14	●Lt
Columbine	4998ff	*Aquilegia spp.*	P	18-30"	B	Sp-ES	TP DS	6-8	W	14–28	●Lt,Ch3-4w
Coneflower, Prairie	5007	*Ratibida columnifera*	P	1-3'	B N	MS-LS	TP	6-8	W	7–42	Ch1w
Coreopsis	5012	*Coreopsis grandiflora*	P	18"	BC	ES-F	TP	8-10	C/M	7–21	◗Lt
Cosmos	5017ff	*Cosmos bipinnatus*	SSA	3-5'	BCS	MS-F	DW TP	2-4	W	7–10	Lt
Cosmos, Yellow	5039	*C. sulphureus*	A	2-3'	BC	MS-F	DW TP	2-4	W	7–10	
Dahlia	5044	*Dahlia x hybrida*	TP/A	12-14"	BC	MS-F	TP	6-8	W	7–14	◗
Daisy	5047ff	*Leucanthemum x superbum*	P	36"	BC	ES-MS	TP	6-8	W	7–14	
Datura	5051	*Datura metel*	TP/A	3-4'	BFW	ES-F	TP		C	21–42	Sc, Sk, Lt
Delphinium	5052ff	*Delphinium x cultorum*	P	3-6'	BCD	MS-LS	TP	10	M/W	14–21	Ch2-4w
Dianthus (Carnation)	5061ff	*Dianthus spp.*	A	12-20"	BCF	MS-LS	TP	8-10	M	7–14	
Didiscus	5067	*Trachymene coerulea*	A	24"	CB	MS-LS	DW TP	8	W	14–21	
Drumstick Flower	5072	*Craspedia globosa*	TP/A	1-3'	CDB	MS-LS	TP, DS	6-8	M	10–30	
Dyer's Coreopsis	5904, p 103	*Coreopsis tinctoria*	SSA	30"	CB	MS-F	DS TP DF	6-8	C	4–10	S, rugged
Echinacea	4547, p 82	*Echinacea spp.*	P	1-3'	BC	MS-LS	TP DW	8-10	W	10–21	◗
Flax, Blue	5079	*Linum perenne lewisii*	P	9-12"	B	ES-LS	DS TP DF	6-8	C	21–28	◗
Flowering Cabbage	5082	*Brassica oleracea*	A	8-18"	BNE	F-F*	DSTP	5-7	C	7–14	start Jun/TP Aug
Forget-Me-Not	5091	*Myosotis sylvatica*	B,P	6-12"	BCG	Sp-ES	DS	8-10	M	8–30	
Four O'Clock	5095	*Mirabilis jalapa*	A	24-36"	BF	ES-LS	TP DW	6-8	W	5–10	
Gaillardia, perennial	5097	*Gaillardia aristata*	P	24-36"	BC	MS-F	TP DW	6-8	W	14–21	Lt
Gaillardia, annual	5098	*Gaillardia pulchella*	A	1-3'	BC	MS-F	TP	4-6	W	7–20	Lt
Gazania	5100	*Gazania rigens*	A	8-10"	BW	MS-F	TP	6-8	W	12	Lt
Globe Amaranth	5102ff	*Gomphrena globosa*	A	2'	BD	MS-F*	TP	8-12	M	7–30	Dk, Ch5w
Godetia	5111	*Clarkia amoena*	A	20-30"	BC	MS-LS	TP	4	C/M	7–14	
Helen's Flower	5119	*Helenium autumnale*	P	4-5'	BC	LS-F	TP	6-8	M	14–21	
Heliopsis	5113	*H. scabra*	P	3-6'	BCS	MS-F	TP DW	10-12	M	14–21	
Heliotrope	5116	*Heliotropium arborescens*	TP/A	14-18"	FWBC	MS-F	TP	6-8	W	21–28	◗
Hibiscus	5120	*H. moscheutos*	P	2-3'	BN	LS-F	TP	8	W	10–30	PP
Hollyhock	5122ff	*Alcea rosea*	SSB	4-8'	BS	MS-LS	TP DF	8-9	WM	7–21	St
Honesty (Silver Dollar)	5132	*Lunaria annua*	B	3'	DN	LS-F	DS TP DF	6	M	14–21	◗
Impatiens	5142	*Impatiens walleriana*	TP/A	8-14"	WB	ES-F	TP	10	W	7–21	●Lt
Indigo, Japanese	5911, p 10	*Persicaria tinctoria*	A	1-2'	dye	MS-F	TP	6-8	W	20–60	

Free shipping for seed orders $30 and up!

MORE FLOWERS AT GLANCE

Name	item#	*Botanical Name*	ABP	height	uses	season	sow	start	temp	days	notes
Jacob's Ladder	5144	*Polemonium caeruleum*	P	1'	B	ES	TP	8-10	M	20–25	◗
Job's Tears	5147	*Coix lacryma-jobi*	A	24-36"	DN	F	TP	6-8	C	7–14	◗S
Joe Pye Weed	5150	*Eutrochium purpureum*	P	5-9'	BNC	LS-F	DS DF		M	14–21	S, St
Johnny-Jump-Up	5152	*Viola tricolor*	SSP	4-6"	EB	Sp-F*	DS DF		M	12–14	◗
Kiss-Me-over-the-Grdn	5154	*Polygonum orientale*	A	6-7'	NSB	MS-F	DS DF TP	4-6	W	14–20	Cv, St
Lace Flower	5157	*Orlaya grandiflora*	A	2-3'	BCD	MS-F	DW TP	4-5	M	12–16	
Larkspur	5160ff	*Consolida spp.*	A	24-36"	BCD	ES-F*	DS TP DF	6-8	C	14–28	◗Cv, Ch1w
Lavatera	5171	*Lavatera trimestris*	A	20-36"	BC	MS-F	DS TP	6-8	M	14–21	◗Cv
Lavender	4585ff, p 83	*Lavandula angustifolia*	P	2-3'	BCDF	MS-F	TP	8-10	W	14–28	St, Lt
Lobelia	5180	*Lobelia erinus*	TP/A	4"	BW	ES-F	TP	6-8	M	14–20	◗S, Lt
Love-in-a-Mist	5184ff	*Nigella spp.*	A	15-24"	BD	MS-F	DS TP	6	M	10–14	
Love-Lies-Bleeding	4831ff, p 88	*Amaranthus caudatus*	A	24-48"	BNDE	MS-F	TP	5-6	W	7–10	PP
Lupine	5195ff	*Lupinus polyphyllus*	P	36"	B	ES	DS TP DF	6-8	C/M	14–60	◗Sk, PP
Madder	5913, p 103	*Rubia tinctorum*	P	3-4'	dye	F	TP DW	6-8	M	7–21	
Maltese Cross	5203	*Lychnis chalcedonica*	P	28-40"	BC	MS	TP	8-10	M	7–14	◗
Marigold	5211ff	*Tagetes spp.*	A	8-30"	BCW	MS-F	TP DW	3	W	5–8	Dk
Mignonette	5255	*Reseda odorata*	A	10-15"	F	ES-LS	DW		M	10–14	◗S, Lt
Millet, Foxtail	5257	*Setaria macrochaeta*	A	3-5'	BCDN	MS-LS	DW		M/W	10–21	S
Millet, Purple Majesty	5259	*Pennisetum glaucum*	A	3-5'	BCN	LS	TP	2-3	W	5-10	◗
Morning Glory	5271ff	*Ipomoea spp.*	A	8-12'	VS	ES-F	DW TP	3	W	10–21	Sc, Sk, PP
Nasturtium	5280ff	*Tropaeolum spp.*	A	12-16"	BEWC	ES-F	DW TP	3	M	10–14	Cv
Nicotiana	5300	*Nicotiana sylvestris*	A	4-6'	FN	MS-F	DS TP	6-8	W	7–14	Lt
Painted Tongue	5303	*Salpiglossis sinuata*	A	15"	BC	ES-F	TP	6-8	M	14–21	
Pansy	5305ff	*Viola spp.*	A	6-12"	BCW	Sp-ES	TP DF?	8-9	C	12–21	◗Dk
Petunia	5321ff	*Petunia x hybrida*	A	4-6"	WBG	ES-F	TP	8	W	7–14	Lt
Phacelia	5331	*Phacelia tanacetifolia*	A	18-30"	B	MS-F	DS		C	7–12	Ch, S
Phlox, annual	5335	*Phlox drummondii*	A	6-8"	BC	ES-F*	TP DS	8	C	7–14	◗
Phlox, perennial	5339	*P. paniculata*	P	36"	BC	LS-F	TP DF	10-12	C	21–30	◗St
Pincushion Flower	5341	*Scabiosa atropurpurea*	A	36"	BC	MS-F*	TP DW	4-5	M	14–21	Ch1w
Poppy, Oriental	5345	*Papaver orientale*	P	16"	BND	Sp-ES	DS			7–14	Lt
Poppy, annual	5350ff	*Papaver spp.*	SSA	24-48"	BCND	MS-LS	DF DS			14–21	
Poppy, California	5381	*Eschscholzia californica*	A	8-12"	B	MS-LS	DS			14–21	
Red Hot Poker	5343	*Kniphofia uvaria*	P	32"	BCN	MS-LS	TP	8-10	M	21–28	PP
Rudbeckia, perennial	5393	*Rudbeckia fulgida*	P	24"	BC	MS-LS	TP	6-8	W	7–21	Lt
Rudbeckia, annual	5395ff	*R. hirta*	A	24-36"	BCN	ES-LS	TP DF?	6-10	W	14–21	
Sage, Gentian	5411	*Salvia patens*	A	30"	BC	MS-F	TP	12-14	M/W	14–21	S
Salvia	5406ff	*Salvia spp.*	TP/A	12-18"	BCD	MS-F	TP	10-12	M	14–21	S
Snapdragon	5431	*Antirrhinum majus*	A	30-36"	BC	MS-F*	TP	8-10	C/M	7–14	◗Ch2w, Lt
Statice	5449	*Limonium sinuatum*	A	24-30"	DCB	MS-F	TP	8-9	M/W	7–14	S
Stock	5475	*Matthiola incana*	A	12-18"	BC	ES-F*	DS TP	6-8	M	7–14	S
Strawflower	5483ff	*Xerochrysum bracteat.*	A	14-40"	DBC	MS-F	TP	7-8	W	7–14	Lt, S
Sunflower	5500ff	*Helianthus spp.*	SSA	2-12'	CNS	LS-F	DW TP	3-4	M/W	7–14	
Sweet Annie	5603	*Artemisia annua*	SSA	36-60"	FD	LS-F	DF TP	6-8	C	10–21	◗Lt, St
Sweet Pea, perennial	5611	*Lathyrus latifolius*	P	5-6'	CSV	MS-LS	DS		C	21–28	Sk, Cv
Sweet Pea, annual	5614ff	*L. odoratus*	A	1-6'	CFSV	MS-LS	DS TP	6-8	C	14–21	Sk, Cv
Sweet William	5061, p 93	*Dianthus barbatus*	SSB	18"	FBC	ES	DS TP	6-8	M	7–14	
Thyme, Creeping	5643	*Thymus serpyllum*	P	2-3"	FGB	MS-LS	DS TP DF	8-9	C	14–28	◗Lt
Tithonia	5647ff	*T. rotundifolia*	A	4-6'	BNS	MS-F	TP DW	6	W	7–14	
Verbena	5661ff	*Verbena spp.*	A	8", 48"	WBC	MS-F	TP	6-8	M	14–21	◗Lt, Ch3w
Wallflower	5675	*Cheiranthus allionii*	B	9-12"	BC	MS-F	TP DS	6-8	C	7–21	
Zinnia	5700ff	*Zinnia spp.*	A	20-42"	BC	MS-F	TP DW	3-4	W	7–14	

ABP: A=annual, B=biennial, P=perennial, SS=self-sowing, TP/A=tender perennial grown as annual.
height: typical height at maturity
uses: B=beds and borders, C=cutting, D=drying, dye=dye plant, E=edible, F=fragrance, G=ground cover, N=novel accent, S=screen, V=vining and climbing, W=windowbox, container
season: peak bloom time: Sp=spring, ES=early summer, MS=midsummer, LS=late summer, F=fall until frost, F*=fall after frost
sow: DS=direct sow in spring ASAP, DW=direct sow when soil has warmed or after danger of frost has passed, TP=transplant, DF=direct sow in fall
start: suggested number of weeks before transplanting
temp: suggested soil temperatures for good germination: C=cool, 60-65˚, M=moderate, 65-70˚, W=warm, 70-85˚
days: number of days to seedling emergence
notes: ◗=can grow in partial shade, ●=can grow in full shade or part shade. (The rest need sun.)
S=surface sow, Cv= cover seed, PP=use peat pots
Lt=needs light to germinate, Dk=needs darkness to germinate,
Sk=soak seed 12-24hrs, Sc=scarify seed with sandpaper or emery board,
St=stratify seed; place in moist soil and freeze or refrigerate or alternate between the fridge and freezer,
Ch=chill seed, sometimes specifies duration (d=days, w=weeks) and temperature



Key to symbols (❊ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

FLOWERS

Flowers are arranged here alphabetically mostly by common name. For Dye plants see p. 103. **See chart on pp. 86-87 for cultural information and common uses. Botanical index is on p. 78.** Days in parentheses after a variety indicate days to first bloom.

All flowers open-pollinated unless noted.

MIXES

Beneficials Mix - Organic Frank Morton teaches that "when you increase the diversity of an ecosystem you enhance its ability to maintain itself and to resist perturbation." One way to attract and maintain a diverse population of beneficial insects and pollinators is to sow this mix of annuals, biennials and perennials. Instead of resorting to toxic sprays, invite hover flies, ladybugs, lacewings, parasitic wasps, tachnids, spiders, minute pirate bugs, damsel flies and big-eyed bugs and let them devour the "bad" bugs! Something in the mix will be blooming from spring through fall. Addressing concern over neonicotinoids and their deleterious effects on pollinators, we have redesigned our beneficials mix to contain only organic seed, ensuring that no neonicotinoids were used in seed prep, plant growth or after-harvest treatment. Consisting of anise hyssop, bee balm, borage, calendula, california poppy, cilantro, dill, fennel, mustard, parsley, phacelia and Ruby Parfait celosia, this mix will be sure to please a diverse abundance of insect helpers. Should any variety become unavailable we will substitute one with similar efficacy. Sow in spring as a hedgerow in a well-prepared weed-free seedbed in full sun. ✿

5804 ***A**: 1.4g, $3.00* ***B**: 7g, $10.00* ***C**: 28g, $26.00*
***D**: 112g, $84.00*

Cutflower Mix A mixture of annual flowers that can be used for cutting. Includes popular types such as aster, bachelor's button, calendula, cosmos, zinnia; also some lesser-known kinds. ✿

5807 ***A**: 1g, $2.20* ***B**: 14g, $6.00* ***C**: 56g, $18.00*
***D**: 224g, $65.00*

Northeast Wildflower Mix A blend of 19 perennial and self-sowing annual species native to or naturalized in the northeastern U.S. and Canada. Includes black-eyed Susan, New England aster, blazing stars, sweet William, shasta daisy, bachelor's button, echinacea and scarlet flax. Broadcast in spring or fall in a well-prepared weed-free seedbed in a sunny spot. Seed at a rate of 1 lb/4500 sq ft. ~2,143 seeds/g. ✿ ②

5809 ***A**: 1.4g, $2.30* ***B**: 7g, $5.00* ***C**: 28g, $9.00*
***D**: 1#, $46.00*

ACHILLEA *Achillea* spp.

Perennial, Zones 3-10. Named for Achilles, who used it to stanch battle wounds. We recommend White Yarrow (p. 85) for medicinal use. Likes full sun and good drainage. Avoid rich soils. Cut back spent blossoms to encourage another bloom.

Cerise Queen *A. millefolium. Dropped for lack of sales.*

Summer Pastels *A. m.* What's not to love about a yarrow? Easy to care for, long lived and long blooming, good in drought and beautiful, with a full range of soft pastel colors to light up any empty spaces in your sunny garden. This AAS winner covers the range from creamy yellow to gold, light to deep pinks, shades of lilac, red and white. Support beneficial insects in your garden. 18–24". ~6,000 seeds/g. ✿ ③

4803 ***A**: 0.05g, $3.00* ***B**: 0.15g, $6.00*
***C**: 0.6g, $13.00*

The Pearl *A. ptarmica* Bears clusters of fully double small white pompon blooms with tiny yellow centers, almost like a large double Baby's Breath. Though its common name Sneezewort would lead one to believe that the flowers induce excessive sneezing, actually it is less allergenic than common yarrow. Easily cultivated, spreads readily and makes an effective "wild" border, 2–3' tall. Supplies copious cutflowers from spring until frost, enjoyable either fresh or dried. Dry slowly before the oldest blooms start to brown. ~7,000 seeds/g. ③

4804 ***A**: 0.05g, $1.90*
***B**: 0.15g, $2.70*
***C**: 0.6g, $3.50*

AGERATUM *A. houstonianum*

Annual. Its name means 'not growing old' as the flowers retain color for a long time. Also known as Flossflower. Covered with blossoms, great for summer borders. **Culture:** Start indoors at 80˚ for 6–8 weeks before last frost; grow on at 60–65˚. Set 9–12" apart. Likes full sun. Water in hot weather. Extreme temperatures inhibit flowering. Will not tolerate frost. Cut for vase when flowers are first opening.

Dondo Blue (40 days from transplanting) A cutting ageratum with long stems. Blooms held nicely through a rainy summer, all the way from July 20 to an Oct. 5 killing frost. ~7,000 seeds/g. ③

4811 ***A**: 0.1g, $2.40* ***B**: 0.5g, $5.00* ***C**: 2g, $9.00*

Red Flint (60 days) Dense fuzzy heads are beautiful, standing on sturdy 2' stems and catching the fading summer's light. The color isn't quite red: more of a purplish-red. They make a good cut, and can be dried as well, retaining their color. ~7,500 seeds/g. ③

4815 ***A**: 0.1g, $2.30* ***B**: 0.5g, $4.40* ***C**: 2g, $7.50*

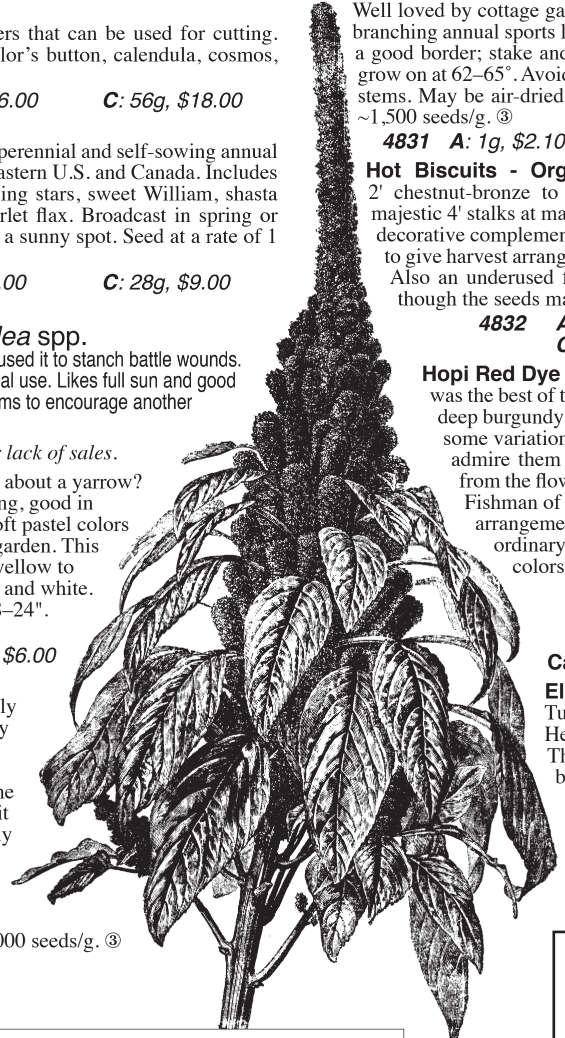
Carpet of Snow Alyssum *Lobularia maritima* (60 days) Annual. Free-flowering ground cover, blossoming from late spring well into fall with a fragrance like fresh-mown hay. Cascading habit makes it excellent for windowboxes or terrace edges. 4" dwarf white. Formerly known as Little Gem, predates 1890. Widely recognized nectar source for beneficial insects. Start seed in cool place 6 weeks before setting out. Needs light to germinate. Transplant seedlings 4–8" apart. Easy to grow, likes sun, tolerates some shade. To extend their season, shear plants halfway back four weeks after bloom. Resistant to frost, will tolerate temperatures below 25˚. ~3,200 seeds/g. ✿ ②

4821 ***A**: 0.5g, $2.10* ***B**: 7g, $3.80* ***C**: 28g, $5.00*
***D**: 84g, $12.00*

AMARANTH *Amaranthus* spp.

Annual. A dual-purpose crop, both nutritious and decorative. From the Greek *amarantos* for 'unfading.' Used as an ornamental, especially in harvest arrangements. Amaranth was an extremely important food of the Aztecs. **~1,250 seeds/g.**

Also see grain amaranth on p. 27, and amaranth for greens on p. 30.



Love-Lies-Bleeding *A. caudatus* (90 days) Also known as Tassel Flower. Well loved by cottage gardeners for more than 300 years. This vigorous 2–4' branching annual sports long drooping red tassels that hold until frost. Makes a good border; stake and tie for neater appearance. Start indoors at 70–75˚, grow on at 62–65˚. Avoid heavy fertilization. Space at least 1' apart for strong stems. May be air-dried by hanging upside down; use heat for better color. ~1,500 seeds/g. ③

4831 ***A**: 1g, $2.10* ***B**: 7g, $4.60* ***C**: 28g, $8.00*

Hot Biscuits - Organic *A. cruentus* (65-75 days) Flaunts glorious 2' chestnut-bronze to copper-colored well-branched seedheads atop its majestic 4' stalks at maturity. Pinch back to facilitate branching. Wonderful decorative complement to the red amaranths, used as a garden backdrop or to give harvest arrangements a bright earthy autumnal color. Easy to grow. Also an underused food plant both for its seeds and its young leaves, though the seeds may require too long to mature in our climate. ①

4832 ***A**: 0.2g, $2.40* ***B**: 0.6g, $3.80*
***C**: 1.8g, $8.00* ***D**: 9g, $24.00*

Hopi Red Dye - Organic *A. cru.* (46 days) A stately 6' plant, Hopi was the best of the nine red amaranths we compared, displaying 1–2' deep burgundy inflorescences. Leaves may be green or burgundy or some variation. Eat the young leaves in salads or slightly steamed, admire them young or old. The Hopis make a scarlet food dye from the flower bracts to color their ceremonial piki bread. Yanna Fishman of Union Mills, NC, suggests using Hopi in your floral arrangements. "When added to a flower bouquet it makes an ordinary clear jar look like an elegant purple-tinted vase as it colors the water." **Indigenous Royalties.** ①

4835 ***A**: 1/16oz, $2.50* ***B**:1/8oz, $4.00*
***C**: 1/2oz, $8.00* ***D**: 1oz, $12.00*
***E**: 4oz, $42.00*

Carnival *Party's over—dropped for slow sales.*

Elephant Head - Organic *A. gangeticus* (90 days) Tune out the politicians and elect this garden Elephant Head instead for its more amusing flair for the dramatic. The 110-year-old heirloom with deep reddish-maroon blooms develops a 6–12" vertical "trunk" atop a 12–18" base during August. The whole spectacular plant grows 3–5'. Seed from German immigrants saved by three generations of gardeners in Idaho, popularized by Seeds of Change. ①

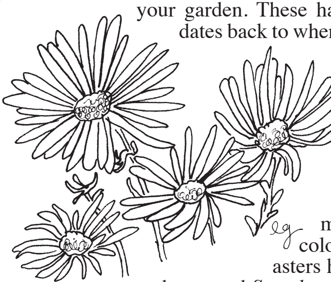
4837 ***A**: 0.1g, $2.40* ***B**: 0.3g, $3.90*
***C**: 1.2g, $9.00* ***D**: 6g, $23.00*

Weight equivalents

1/16 oz = 1.77 g
1/8 oz = 3.55 g
1/4 oz = 7.09 g
1 gram = .035 oz
1/2 oz = 14.2 g
3 grams = .106 oz
1 oz = 28.4 g
6 grams = .212 oz
4 oz = 113.5 g
24 grams = .851 oz
1# = 453.6 g
120 grams = 4.24 oz
2.2# = 1000 g

> Hope you will consider offering more native flowering perennials. Every year, since your beginning, I've admired your work, and you continue to surprise and impress me.
> – Ginny Remeika, Pownal, ME

New Hybrids Aster *Symphyotrichum novi-belgii* Perennial, Zones 4-8. A good antidote when summer flowers fade and the late-season doldrums hit your garden. These hardy “New York” (the species name dates back to when the State of New York was known as New Belgium) asters pick up right where the others leave off, blooming the first year in a range of colors from red to purple and bluish to white in sequence from August to November. Because this is a mix of various hybrids and each type, in turn, blooms for several weeks, it makes a continuous long-lived show of color on the 4' plants. All the New World asters have been taken from the *Aster* genus and renamed *Symphyotrichum*. ~1,700 seeds/g. ⑤



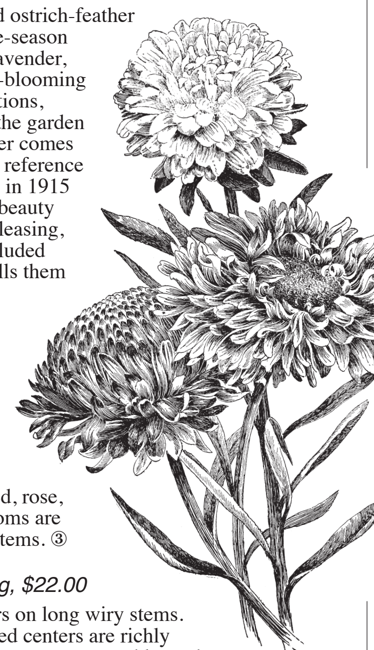
4849 ***A**: 0.05g, $2.60* ***B**: 0.2g, $4.50* ***C**: 1g, $9.00*

CHINA ASTER *Callistephus chinensis*

Annual. *Callistephus* is from Greek kallos meaning ‘beautiful’ and *stephos*, ‘crown.’ The China Aster began its journey west around 1730 when a Jesuit missionary noticed it growing in a field near Beijing. Wildly popular by 1883 when Burpee listed 19 different classes of them compared to two each of marigold and zinnia. Good bedding plants or cutflowers.

Culture: Sow indoors at 70–72° in late winter, transplant after danger of frost. Cut stems when 2–4 flowers have opened. Vase life is 5–7 days. Aster Yellows is a serious disease problem. Use floating row covers (**8874,** p. 141) to keep out leafhoppers, the vector. **~450 seeds/g.**

Crego Mix - Organic (90 days) Bold ostrich-feather blooms on 2' plants make a shaggy late-season appearance with 4" flowers in violet, lavender, pink, rose, fuchsia and white. This fall-blooming beauty holds well in wet or cold conditions, providing a bit of late-season color in the garden or bouquets. The common name of aster comes from the Greek *astron*, meaning star, a reference to their shape and bright colors. Maule in 1915 asserted that they “surpass in size and beauty any other aster we have ever seen.” “Pleasing, stately, handsome and vigorous,” concluded H.W. Buckbee in 1927. The grower calls them “stunning.” ①



4852 ***A**: 0.5g, $2.30*
***B**: 4g, $4.00*
***C**: 16g, $7.00*

Matsumoto Mix (100 days) A very classy cutflower that may be harvested by the individual stem or in its entirety. Flowers sport distinct yellow centers amidst a variety of shades including apricot, blue, pink, red, rose, salmon and white. 2" semi-double blooms are concentrated at the top of strong 2½' stems. ③

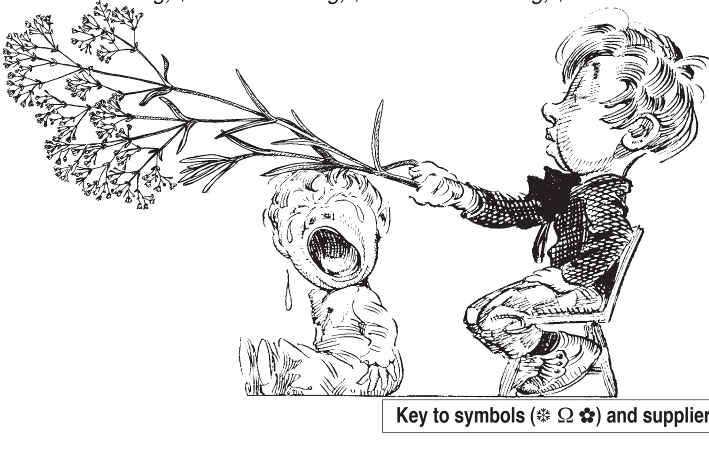
4854 ***A**: 0.2g, $2.80*
***B**: 3g, $10.00* ***C**: 9g, $22.00*

Princess Mix (110 days) 2–3" flowers on long wiry stems. The pompon blooms with deeply crested centers are richly colored in shades of purple, salmon, magenta, rose and lavender. These elegant cutflowers tend to be late bloomers. Unsurpassed in September. ③

4857 ***A**: 0.25g, $2.30* ***B**: 2g, $4.30* ***C**: 8g, $8.00*

Single Alba Baby’s Breath *Gypsophila paniculata* Perennial, Zones 4-8. Lovely as a border plant in masses, bearing many tiny single white flowers. Great filler for bouquets. Useful as an everlasting if cut before fully opened. May be sown direct; do not cover. Likes well-drained soil. Grows to 3'. ~1,270 seeds/g. ③

4861 ***A**: 0.7g, $2.50* ***B**: 7g, $5.00* ***C**: 21g, $12.50*

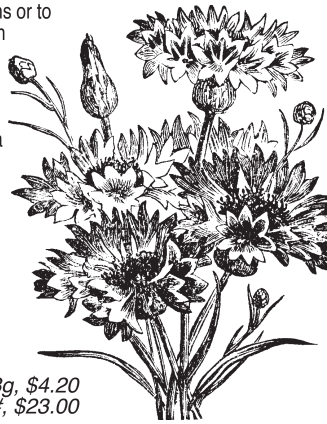


BACHELOR’S BUTTON *Centaurea cyanus*

Annual. Named for the centaurs of Greek mythology. Easy to grow, great for cutflowers and beds. Common name may refer to the tight unopened buds’ resemblance to buttons or to their popularity as boutonnieres. Also known as Cornflower and, formerly, Hurt-Sickle because its wiry stems dulled many a sickle during mowing time.

Culture: Start indoors at 60–65° 2 months before setting out, or direct seed in May in a sunny location. Deadhead for persistent blooms, or make a succession planting in mid-late June if you desire late-summer flowering. Will self-sow. Lasts longer than most flowers after frost. Excellent drought resistance. Cut when flowers are just beginning to open—they’ll open more in the vase and last 6–10 days. 3'.

~210 seeds/g. *Cannot ship to Alaska.*



Blue Boy (90 days) Showy blue. ②

4871 ***A**: 1g, $2.10* ***B**: 28g, $4.20*
***C**: 112g, $9.00* ***D**: 1#, $23.00*

Frosty Mix (96 days) Dark centers featuring maroons and purples fade into white outer petals, creating a frosted effect. Bloomed 4 weeks after a May 2 transplanting at Loon Song Farm. ③

4873 ***A**: 1g, $2.10* ***B**: 7g, $4.20* ***C**: 28g, $9.00*
***D**: 112g, $22.00*

Black Gem or **Garnet** (90 days) Ruffled dark maroon. Dates from Buist’s 1942 catalog. Hard to find. ③

4875 ***A**: 0.25g, $2.10* ***B**: 1g, $4.20* ***C**: 4g, $7.00*
***D**: 12g, $11.00*

Red Boy (90 days) Deep red. Dates from 1942. ②

4877 ***A**: 1g, $2.10* ***B**: 7g, $4.20* ***C**: 28g, $7.00*
***D**: 1#, $70.00*

Bachelor’s Button Mix (90 days) We have recently noticed a decline in the quality of the mix and so are creating a custom blend in order to ensure the full range of colors: pink, red, and white with blue predominating. ②

4879 ***A**: 1g, $2.10* ***B**: 28g, $4.20* ***C**: 112g, $7.00*
***D**: 1#, $20.00*

Florist Blue Balloon Flower *Platycodon grandiflorus* Perennial, Zones 3-8. Developed specifically for the cutflower trade, this 2½–3½' cultivar bears long-lasting deep blue rounded star-shaped flowers from June to August. Called Balloon Flower because the buds look like inflated balloons ready to burst. Slow to emerge in spring; needs some support once it does. Plant in sun to light shade, 12–18" apart. Taproot can make it tricky to transplant. Avoid wet soil where it will not thrive. ~1,100 seeds/g. ③

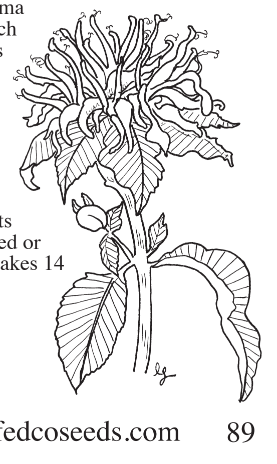
4881 ***A**: 0.1g, $2.20* ***B**: 0.4g, $4.30* ***C**: 2g, $7.00*

Double Camellia Mix Balsam *Impatiens balsamina* Annual. Balsam reigned supreme during the Victorian era when it was called Lady Slippers. Vick’s in 1895 averred “no plant will give more in return for the care bestowed upon it and none is more frequently neglected,” recommending spacing at least 1' apart, aiming for a wide diameter at the base and a pyramid shape covered with flowers. A different school suggests pinching off the side branches and the first flowers to encourage a profusion of blooms near the top of the 2' plant giving the effect of a ready-made bouquet. Both agree that wide spacing is important to make the most of Balsam’s novel show of abundant pink, rose and white rosettes along the axils up its stems. Direct seed after danger of frost. Don’t cover the seed. ~120 seeds/g. ③

4883 ***A**: 1g, $2.00* ***B**: 7g, $3.70* ***C**: 28g, $6.50*

Panorama Red Bee Balm *Monarda didyma* Perennial, Zones 4-9. The original true-red shade returns in all its glory after leaving the market for several years while the breeder retooled. Gardeners will be thrilled as this used to be our best-selling perennial and a stable red bee balm from seed is hard to come by. Bushy clumping 30" Panorama bears 1–2 whorls of red tubular flowers on each stem from mid to late summer. Also known as Oswego Tea: the Oswego Indians used the species for tea as did the colonial American separatists in their struggles with the British over tea taxes. Attractive to butterflies, hummingbirds and, of course, bees, Monarda can grow in either sun or shade. In shade its bloom time is lengthened but it can be blighted by powdery mildew (which lessens its attractiveness but not its longevity). Direct seed or transplant, surface sow in spring or summer, takes 14 days to germinate. ~2,000 seeds/g. ✿ ②

4886 ***A**: 50 seeds, $2.50*
***B**: 200 seeds, $6.30*
***C**: 500 seeds, $13.50*



Nonstop Tuberous Begonia *B.* x *tuberhybrida* (140 days) F-1 hybrid. Perennial in Zone 10, grown as an annual. A boisterous mix of flamboyant colors to awaken your garden. Nine shades, from pink to fiery red, apricot to golden orange, plus yellow and white, create a riot of color in a shady garden border or in hanging pots. Europe's #1 windowbox plant sports showy $3\frac{1}{2}$–$4\frac{1}{2}$" fully double blooms on vigorous basal-branching stems. Begonias like shade, moisture, very rich soil, will tolerate a bit of sun. Start indoors, set out after all danger of frost. Needs 75° to germinate; takes 2–3 weeks. Pelleted seed. ②

***4889 A**: 10 seeds, \$2.50 **B**: 50 seeds, \$6.50*

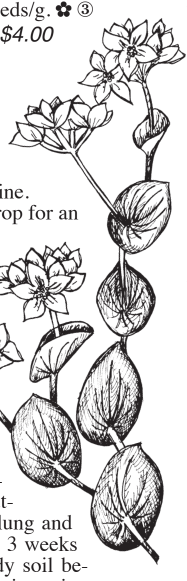
Bells of Ireland *Moluccella laevis* (110 days) Annual, everlasting. Spikes of bright green bell-shaped "flowers" atop $2\frac{1}{2}$' branching stems. Each green bell is really a showy inflated calyx with a tiny pinkish flower inside. When dried, bells turn creamy white. Likes partial shade; thrives in cool climates. Needs light to germinate. Will self-sow. ~140 seeds/g. ②

***4896 A**: 1g, \$2.20 **B**: 3g, \$3.50 **C**: 15g, \$7.00*

Blazing Stars Liatris *These stars have fallen from our list.*

Bouncing Bet *Saponaria officinalis* Perennial, Zones 3-9. Also known as Soapwort. Bet is not a dye plant, but is included in a dye garden because its saponin-rich roots and leaves can be used to wash wool gently when some lanolin retention is desired. Museum conservators use it to wash delicate fabrics and textiles, especially of grease. This charming sweetly scented pink perennial is often seen around old homesteads in Maine. It has always been appreciated for the late-July colors of its dense clusters of 5-petaled flowers and their faint clove scent that attracts pollinators. The 3' plant thrives in moist, partially shady areas but should not be planted next to ponds with amphibians or fish since saponins can be toxic. Choose your planting spot carefully, because, as one customer warned, "Bet has taken me years to get out of my garden, it bounces everywhere." Stratify seed. ~600 seeds/g. ✿ ③

***5920 A**: 0.2g, \$1.90 **B**: 0.6g, \$3.00 **C**: 3g, \$4.00*
***D**: 12g, \$9.00*



Green Gold Bupleurum *B. rotundifolium* var *griffithii* (90 days) Annual. Though not well known outside of Dutch flower auctions where it commands a price similar to roses, this unique plant with yellowish flowers and round leaves is treasured by dried-flower growers. Its well-branched 2' stems air-dry perfectly, retaining their green color as if dried in glycerine. Because each stem fans out, an individual stem provides backdrop for an entire arrangement, either fresh or dried. Start indoors early to reach full growth potential. Will self sow in warmer areas. ~320 seeds/g. ③

***4903 A**: 0.2g, \$2.30 **B**: 0.6g, \$4.40*
***C**: 6g, \$7.50 **D**: 30g, \$20.00*

Butterfly Weed *Asclepias tuberosa* Perennial, Zones 4-9. Also called Pleurisy Root. Native to North America and widely adapted, this bright sun-lover provides a bold splash of bright orange from June until frost. Vigorous mounded 2x2' plants bear broad 5" heads of waxy flowers attractive to butterflies and bees. Leaves are a food source for monarch butterfly larvae. Both the flowers and pointed seedpods are useful for cut-flower arrangements. Native Americans used roots to combat lung and throat troubles and to soothe wounds and sores. Germinates in 3 weeks at 70˚. Choose a permanent site with well-drained fertile sandy soil because its tuberous roots do not like to be disturbed. Direct sow in spring or fall, thinning to 18–24". Cut when at least half the flowers are open. Use caution when handling cut butterfly weed as sap can cause irritation. Slow to emerge in spring. Exceptionally drought-tolerant. ~200 seeds/g. ✿ ②

***4906 A**: 0.5g, \$2.40 **B**: 2g, \$5.00 **C**: 6g, \$9.50*

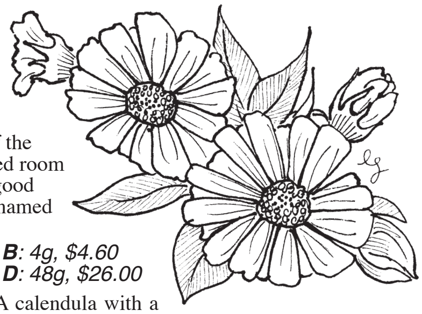
CALENDULA *C. officinalis*

Annual. Old kitchen garden flower, 18–20" tall, also known as Pot Marigold. Beautiful daisy-like flowers feed pollinators, are good for informal bouquets, and are also edible. Blossoms can be pinched from their stems, dried and added to soups, salads and stews. They are also used in homeopathic remedies, herbal tinctures and ointments for their antiseptic and soothing qualities.

Culture: Calendulas bloom over an extremely long period, thrive in cool weather and persist through autumn's first frosts. Can be direct seeded in May or started indoors in a cool place for early blooms. Readily self-sows. Don't crowd, give them full sun. Deadhead to keep blooms coming and the patch attractive, or try succession plantings. **~150 seeds/g.**

Flashback - Organic (55 days) A mix of orange, apricot and peachy doubled petals, all with red backing to create a distinctive contrast. Colors fade to bicolor yellows or yellow-peach, adding interest as the plants mature. Blooms withstand light fall frosts; still look good in October. Ω ✿ ①

***4911 A**: 1g, \$2.80 **B**: 4g, \$4.90 **C**: 12g, \$10.00*
***D**: 48g, \$28.00*



Kablouna Mix - Organic (60 days) Distinct refined form features striking crested blooms of gold, orange, lemon and apricot with a dark contrasting center. One of the loveliest of the calendulas. Kablouna, our seed room goddess who looks after the good fortune of seed packers, was named for this cultivar. ✿ ①

***4913 A**: 1g, \$2.60 **B**: 4g, \$4.60*
***C**: 12g, \$9.00 **D**: 48g, \$26.00*

Maya Orange - Organic A calendula with a different look. Its brick-orange petals are layered like shingles around the dark brown center giving the illusion of double blossoms, though they really are not. Good cuts to enliven summer bouquets. Donna Dyrek's began blooming on July 14. Readily self-sows. ✿ ③

***4916 A**: 1g, \$2.70 **B**: 4g, \$5.50 **C**: 12g, \$13.00*

Pacific Beauty Mix The classic lovely yellow and orange mix. Herbalists highly regard its healing gifts. ✿ ②

***4920 A**: 2g, \$2.00 **B**: 14g, \$4.90 **C**: 56g, \$9.60*
***D**: 224g, \$23.00*

Resina - Organic (70 days) The best calendula for making tinctures and oils and the one Deb Soule grows at Avena Botanicals. Medium-sized single blooms with small eyes are extremely resinous, coating your fingers or clippers while you harvest flowers. The medicinal sticky resins impart a pleasant odor. Blossoms are primarily bright yellow with yellow centers. A few will be orange with light orange centers. Cheery flowers, good medicine. ✿ ①

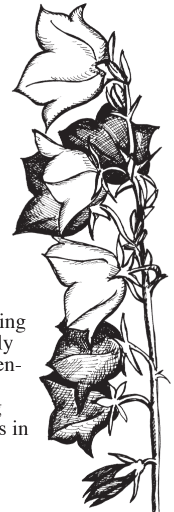
***4925 A**: 1g, \$2.40 **B**: 3g, \$4.70 **C**: 9g, \$8.50*
***D**: 27g, \$20.00*

Solar Flashback Mix - Organic (55 days) A hot release from Frank Morton's calendula program. Morton describes it as "a distinctive new family of flash, selected to highlight contrast between bright light yellows, pinks, and solid red or maroon." Some feature yellow petals, some pinkish-blond, some yellow with light tips, all with contrasting red backs. ☘2007. Ω ✿ ①

***4927 A**: 1g, \$2.80 **B**: 4g, \$4.70 **C**: 12g, \$9.50*
***D**: 48g, \$28.00*

Zeolights - Organic Pinky-maroon backing shows through the yellow petals to lend a pink tinge to the familiar calendula-yellow. Dark centers accentuate the color contrast. A Frank Morton original. Ω ✿ ①

***4929 A**: 1g, \$2.80 **B**: 4g, \$4.70*
***C**: 12g, \$10.00 **D**: 48g, \$30.00*



Blue Clips Campanula *C. carpatica* Perennial, Zones 4-10. Also known as Bellflower or Carpathian Harebell. Masses of light azure bellflowers dance 8" high above a tidy mound of foliage up to 12" wide. Remarkable flower power at the front of the border and equally good in containers. Very hardy and easy to grow, Blue Clips will bloom in sun or partial shade from June to October as long as spent flowers are deadheaded. ~12,000 seeds/ g. ②

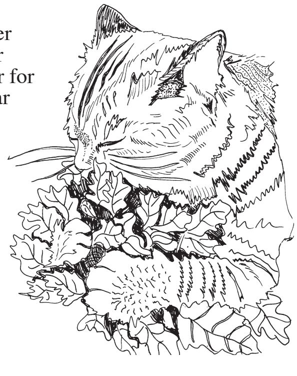
***4930 A**: 50 seeds, \$3.30 **B**: 200 seeds, \$9.00*
***C**: 500 seeds, \$18.00*

Canary Creeper *Tropaeolum peregrinum* Annual. A climbing relative of the nasturtium. Profuse 8' vines with unique deeply lobed frog-toe–like foliage and clusters of lacy-petaled golden-yellow flowers from midsummer till frost. Gorgeous when grown on a sturdy tripod with **5277** Kniola's Purple morning glories (p. 97) and/or **318** Scarlet Runner beans (p. 9). Grows in shade but prefers full sun. ~15 seeds/g. ③

***4932 A**: 1g, \$2.30 **B**: 7g, \$6.00*
***C**: 28g, \$14.00 **D**: 112g, \$38.00*

Persian Catmint *Nepeta mussinii* Perennial, Zones 4-8. While we can't duplicate the lavender fields of Provence, we can create a similar look by planting catmint. Its soft grey-green leaves clothe wiry 1' stems crowned with clusters of bluish-lavender tubular flowers. A member of the mint family, it grows rapidly in rich moist soils, but in sandy drier conditions can be contained. Plant early for blooms the first year. Thereafter will flower for 6 weeks from early spring to summer. Shear plants after blooming to encourage repeat blooms and to diminish self-sowing. Plant in full sun 2' apart. ~1,200 seeds/g. ✿ ③

***4937 A**: 0.1g, \$2.10*
***B**: 0.3g, \$3.80*
***C**: 1.2g, \$7.00*
***D**: 6g, \$10.00*



CELOSIA *C. argentea*

Annual, good for fresh bouquets and everlasting arrangements. From the Greek *keleos*, 'blazing,' a reference to their brilliance. Commonly appear in three groups, *cristata* (crested, fancifully known as brains), *plumosa* (plumed) and *spicata* (with spikes or pointed). All share blazing colors, furry textures and unusual shapes. Known as *ji quan hua* in China where both seeds and flowers are used for blood diseases, bleeding and urinary tract infections.

Culture: From hot climates and at their best in hot dry weather. Should germinate within 10 days at 72–80˚.

Coral Gardens Cockscomb *Dropped for slow sales.*

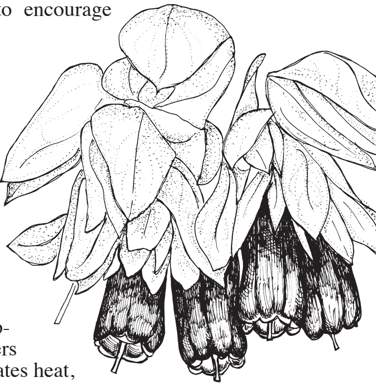
Forest Fire Cockscomb *Also dropped for slow sales.*

Ruby Parfait - Organic *C. a.* var. *spicata* (75 days) Upright 20–26" tall multi-branched wheat-type celosia produces showy spikes, light pink at the base turning to a deep rose-magenta at the tip. Green foliage starts at ground level. A very prolific and striking display in mass plantings, as a border, or in containers. Excellent cutflower. Blooms July through frost. Hums with bees and other pollinators from mid-afternoon until dusk. Prefers full sun and moist rich soil, though does well in marginal dry soil as well. Does not tolerate standing water. ✿ ①

4950 ***A**: 0.2g, $2.30* ***B**: 3g, $7.00* ***C**: 12g, $16.00*

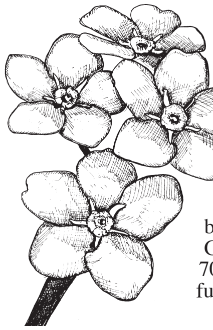
Cramer's Amazon *C. a.* var. *spicata* (120 days) A truly wild thing from the Peruvian Amazon. Makes a great landscape plant, shooting a 3–6' spire punctuated by 2–3" reddish-purple spikes. Amazing long red stems and the spectacular spikes make this a perfect cutflower. Its coleus-colored leaves, green splashed with purple, heighten its dramatic effect. Blooms hold up better than other *spicatas* as a dried flower if cut while the spikes are still short. As the blossoms age they turn white on the bottom. Requires a long season. Start inside 8 weeks before frost and transplant into warm ground. Pinch at 12" to encourage branching. ~250 seeds/g. ②

4956 ***A**: 0.2g, $3.20*
***B**: 1g, $7.50*
***C**: 4g, $18.00*



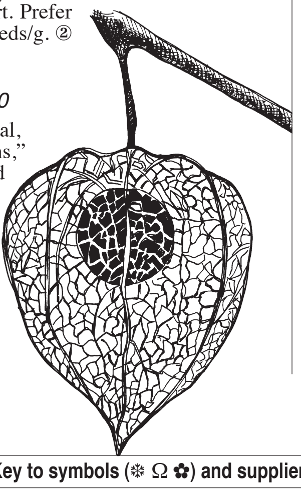
Kiwi Blue Cerinthe *C. major* var. *purpurescens* Annual. Also known as European Honeywort or Wax Plant. Vigorous bushy 12–30" annual comes into focus when the cooler nights of late summer and early fall accentuate its colors. Coin-shaped grey-green foliage covers the sprawling stems. Profuse blue shrimp-like bracts bear terminal purple flowers shaped like comfrey blossoms. Tolerates heat, but likes cool weather and will withstand light fall frosts, looking best when others are fading. Good in a massed border. Direct seed or start indoors 6–8 weeks before setting out after danger of frost. Quick emerging and rugged. "Please do not discontinue cerinthe…It is my very favorite and perhaps the seed most responsible for my continuing love of the spring ritual of planting. Think of the bumblebees," exhorted Susan Barnett of Jacksonville, NY. Cerinthe stays! ~15 seeds/g. ⑤

4962 ***A**: 0.6g, $2.20* ***B**: 2.4g, $5.30*
***C**: 7.2g, $10.00*



Firmament Chinese Forget-Me-Not *Cynoglossom amabile* Annual. Also known as Hound's Tongue. Uniquely bright dainty 5-petaled azure-blue blossoms. Floriferous throughout the summer with three blooms per cluster and a half dozen clusters per plant. Try alongside calendula for color contrast. Introduced by Ernst Benary. 1939 AAS. Start indoors 6 weeks before the last frost or direct seed outdoors in spring. Germinates in 5–10 days at 65–70˚. Space plants 9" apart. Prefer full sun. 16–18". ~200 seeds/g. ②

4965 ***A**: 1g, $2.00*
***B**: 7g, $3.30*
***C**: 28g, $5.50*

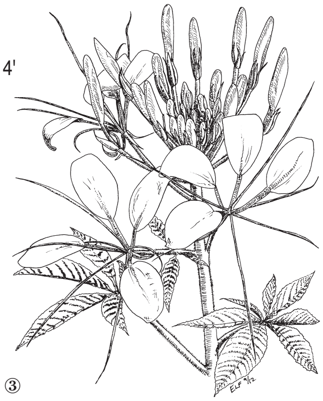


Chinese Lantern *Physalis alkekengi* Perennial, Zones 3-10. Grown for its deep orange "lanterns," the calyxes that surround the red fruits and hold their color when dried. *Physalis* is Greek for bladder, referring to these husks. May be sown indoors in warm place. Likes full sun. Dig out or cut back the roots every three years to counteract its invasive tendencies. ~600 seeds/g. ③

4968 ***A**: 1g, $2.20* ***B**: 3g, $4.20*
***C**: 9g, $9.00*

> You're the most wonderful of all things wonderful.
> – Jenny Hauf, Norfolk, MA

CLEOME *C. hassleriana*



Annual. The Spider Flower sets large open flower clusters with very long stamens atop 4' stalks. Blooms throughout the summer and likes the hot and dry conditions of midsummer. Very attractive to bees. For better germination, prechill seeds in refrigerator. Do not cover seed. Likes alternating day (80˚) and night (70˚) temperatures to germinate. Will self-sow. **~450 seeds/g.**

Rose Queen ✿ ③

4982 ***A**: 0.5g, $2.30*
***B**: 2g, $5.00*
***C**: 8g, $7.00*
***D**: 32g, $15.00*

Violet Queen Gorgeous in August. ✿ ③

4985 ***A**: 0.5g, $2.30* ***B**: 2g, $5.00*
***C**: 8g, $7.00* ***D**: 32g, $15.00*

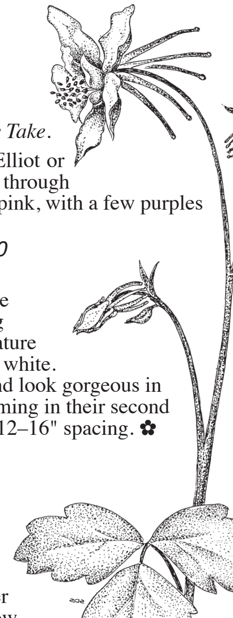
White Queen ✿ ③

4988 ***A**: 0.5g, $2.30* ***B**: 2g, $5.00*
***C**: 8g, $7.00* ***D**: 32g, $15.00*

Wizard Coleus *Plectranthus scutellarioides*, formerly *Coleus blumei* (45 days) Perennial in Zone 10, grown as an annual. Leaves are a resplendent kaleidoscope of colors: rose and ivory edged in green, deep velvet burgundy centered with flame, bronzed pink, scarlet…12 in all. The colors are strongest in deep shade, lighter in part shade. Germinate at 65˚. Do not cover. Do not overwater; subject to damping off. Easy to grow and maintain. Just pinch off any late-season flower stalks. Grows 10–12", great in window boxes and planters. Nikos brings her favorites indoors before frost and enjoys their magic all winter long. ~3,500 seeds/g. ⑤

4992 ***A**: 0.02g, $3.20* ***B**: 0.1g, $8.00*

COLUMBINE *Aquilegia vulgaris*



Perennial, Zones 3-10. Columbines are an essential part of the cottage garden or border. Their delightful flowers in mixed colors bloom in spring and dance above attractive lobed leaves. Easy to grow, likes moist well-drained soil, sun or partial shade. Need light to germinate; take 3–4 weeks. **~800 seeds/g.**

Mrs. Scott Elliot Mixed *Dropped—try Double Take.*

European A better landscape plant than Mrs. Elliot or McKana Giants because its leaves remain green through the whole season. Spurless blossoms are mostly pink, with a few purples and whites. 2½'. ③

4998 ***A**: 0.3g, $2.50* ***B**: 1.2g, $4.50*
***C**: 6g, $7.00*

Double Take Columbine - Organic A unique double Barlow-style columbine with long-lasting (4–6 weeks) spurless blooms that look like miniature dahlias with layers of pink, magenta and creamy white. These attention grabbers hum with pollinators and look gorgeous in bouquets. Plants grow 24–30" tall and start blooming in their second year. Start indoors 6–8 weeks early. Plant out at 12–16" spacing. ✿ ① **NEW!**

5000 ***A**: 0.3g, $4.20*

Yellow Prairie Coneflower *Ratibida columnifera* Perennial, Zones 3-9. One recent summer, I was enticed into a field by a yellow fluttering of dancing flowers on erect 1–3' slender stems. As I approached, I could see that the yellow petals merely skirted around a protruding cylindrical chocolate-brown center disk. One of its names, Mexican Hat, evokes a tall sombrero and the lively and colorful Mexican Hat Dance. Prairie grasslands native likes full sun, blooms May through August, undaunted by drought. ~1,830 seeds/g. ②

5007 ***A**: 1g, $2.20* ***B**: 4g, $3.60* ***C**: 16g, $7.00*

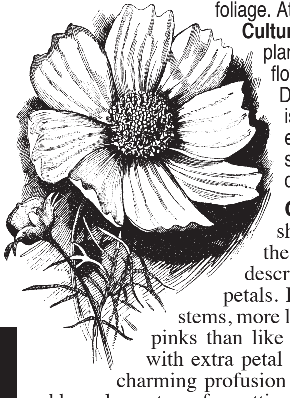
Coneflower: also see Echinacea, p. 82, and Rudbeckia, p. 99.

Early Sunrise Coreopsis *C. grandiflora* Perennial, Zones 3-10. Won 1989 AAS for its ability to bloom weeks earlier than other Coreopsis. Dense well-branched 18" plants are loaded with 2" semi-double vivid golden-yellow blooms loved by syrphid flies, lady beetles, lacewings, parasitic wasps and many other beneficials. Excellent for eco-dying, too. Aerial parts of the plant make a burnt sienna with a rusty orange hue. Start indoors 8–10 weeks before setting out in sunny spot, 12–18" apart. Do not cover seed. For cuts, harvest when flowers start to open. Primed seed. ~400 seeds/g. ✿ ⑤

5012 ***A**: 0.1g, $2.80* ***B**: 0.3g, $5.00* ***C**: 0.9g, $9.00*

COSMOS *C. bipinnatus*

Annual. Sun-loving, free-flowering all summer, can serve as an accent, screen or cutflower. Colorful daisy-style flowers with yellow centers bloom amidst lacy cut foliage. Attracts a broad range of beneficial insects.



Culture: For best results, thin its fast-growing large plants. Deadhead for persistent blooms. Harvest cutflowers when petals on first flower are just opening. Don't wait too long! Old blooms don't last. Vase life is 4–6 days. Light aids germination. May be started indoors at 70–75° (grow on at 60–65°) or direct seeded after last frost. Space 9–12". Tolerant of drought. **~125-150 seeds/g.**

Cupcakes - Organic (90-100 days) These shimmering delicate beauties were named for the pleating of cupcake papers, which prosaically describes the intricately fused folding of the outer petals. Lightweight blooms seem to float on upright stems, more like ballerinas pirouetting in tutus of white and pinks than like cupcake papers. Some blooms are doubled, with extra petal tufts surrounding a central yellow button—a charming profusion of frills. The 4' tall plants attract pollinators and have long stems for cutting. Deadhead to keep the blooms coming. ✿ ①

5017 ***A**: 25 seeds, $3.00* ***B**: 100 seeds, $8.30*
***C**: 400 seeds, $20.00*

Cranberries Double Click (100-120 days) My favorite color in this series, stunning dark maroon semi-double to fully double flowers have a light picotee edge. Not the earliest to bloom but well worth the wait. Temporarily set back by excessive rains but makes a good recovery. Strong stems with attractive ferny foliage grow 2–3'. Long-lasting in a vase. ⑤

5021 ***A**: 0.2g, $2.80* ***B**: 0.6g, $4.20* ***C**: 3g, $15.00*

Rose Bonbon Double Click *Dropped—we prefer real bonbons.*

Double Click Mix (100-120 days) These double and semi-double award-winning flowers garner lots of attention with their puffy blooms in shades of pink, plum and white. 4' tall with sturdy stems, excellent for cutting, and prolific blooms until frost. This superior mix makes garden visitors do a double take. ⑤

5024 ***A**: 0.2g, $2.80* ***B**: 0.6g, $4.20*
***C**: 3g, $15.00* ***D**: 12g, $45.00*

Picotee (90 days) Bicolor flowers vary in hue from white to pink to rose, with each serrated petal edged in contrasting magenta. Plants grow 4' climaxed by blooms 2½–3" across. A beautiful addition to your cosmos bouquet. ✿ ③

5027 ***A**: 0.5g, $2.00* ***B**: 3g, $3.80*
***C**: 15g, $7.00* ***D**: 1oz, $11.00*

Psyche White *Psyched out! Dropped for slow sales.*

Sensation Mix (85-90 days) So named because its early maturity created a sensation when it first came out in 1930. Won AAS 6 years later. These large-flowered cosmos, in pinks, roses, magentas and occasional whites, need little tending. Withstand the first mild frosts of fall. 4–5'. Our second most-popular flower behind only Jewel Mix nasturtium. ✿ ②

5035 ***A**: 1.4g, $2.00* ***B**: 14g, $4.70* ***C**: 56g, $9.00*
***D**: 1#, $36.00*

Tango Cosmos *C. sulphureus* Luxuriant flame-red free-flowering double blossoms wane to bright orange with yellow centers on wiry 18" stems that float above the deeply lobed dark green foliage. Ideal for cutflower production. 4' tall plants span almost 4½' wide. Planted alongside zinnias, sunflowers and amaranth, they were spellbinding in my flower bed. Tango dodged a light September frost and continued its dance well into October, but *C. sulphureus* is sensitive to frost. ②

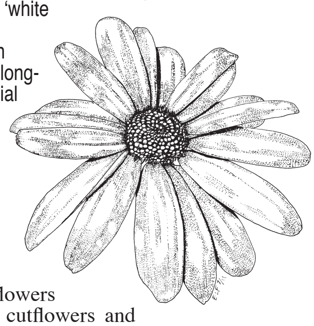
5039 ***A**: 0.5g, $2.50* ***B**: 3g, $5.00* ***C**: 15g, $9.00*
***D**: 60g, $22.00*

Harlequin Mix Dahlia *D.* x *hybrida* Tender perennial, Zones 8-10, grown as an annual. If you like to dally 'mongst the dahlias, these bicolored buffoons are sure to cheer you. This selection of compact semi-double 2½" blooms sit atop strong 14" stems and have a better color range than the conventional strain we used to carry. Semi-doubled bicolor collarette blossoms come in scarlet-yellow, cherry-white, purples, yellows, oranges and reds. Old blooms should be removed to encourage continued flowering. Dahlias prefer full to partial sun and grow most happily with cool nights and warm days. Even though started from seed, as with other dahlias, you can lift their tuberous roots before frost and overwinter them in a cool dry place, saving the tubers of your favorite kinds. ~125 seeds/g. ⑤

5044 ***A**: 20 seeds, $3.00* ***B**: 100 seeds, $8.00*
***C**: 400 seeds, $24.00*

> I appreciate your hard work, professionalism, and cheerful service. Just like your seed products and growers, you keep reliably providing the best in the business. Keep it up, you folks!
> – Christopher Crawford, Upton, MA

SHASTA DAISY *Leucanthemum* x *superbum*



Perennial, Zones 4-10. *Leucanthemum* means 'white flower' and the daisy, with its white petals and yellow centers, is a flower almost everyone can name. Provides great cuts and can serve as a long-lasting low-maintenance backbone in a perennial bed or border. The first hybrid flower, developed by the legendary Luther Burbank from one Japanese and three European daisies. It took him 17 years.
Culture: Start indoors in warm soil 6–8 weeks before setting out in a well-drained location in full sun. Pinch back in late spring for bushier sturdier plants.

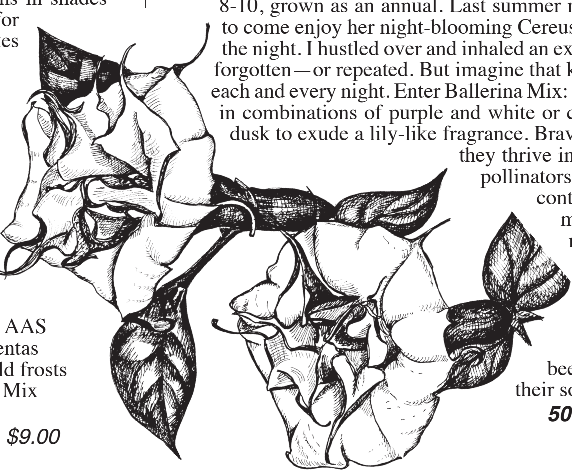
Alaska Strain The clean snow-white flowers with bright yellow centers make cheery cutflowers and border plants. One of the easiest perennials to grow; will usually bloom first year if started indoors in spring and transplanted when soil warms. 3' tall. ~750 seeds/g. ②

5047 ***A**: 0.5g, $1.90* ***B**: 4g, $3.50* ***C**: 16g, $6.00*

Crazy Daisy We're crazy for this daisy because its quilled petals are unlike any other in the Shasta class. Almost all of the 2½–3" creamy white blossoms are fully double and reminded us of dahlias. Bloomed the second year for Donna Dyrek starting on July 6 and put on a good show for nearly a month. The later blossoms were less doubled, showing the small yellow centers more. Required no protection to overwinter in central Maine, but mulching is recommended for colder areas. 24–28" tall. Need a cold period and long days to initiate bloom. ~900 seeds/g. ③

5049 ***A**: 0.1g, $2.50* ***B**: 0.3g, $4.20* ***C**: 1.2g, $8.00*

Purple Ballerina Datura *Twirled into a mix! Try 5051.*

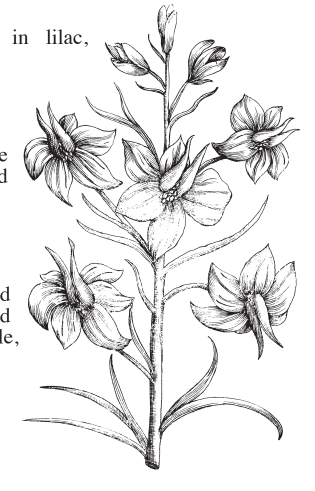


Ballerina Mix Datura - Organic *Datura metel* (95 days) Perennial in Zone 8-10, grown as an annual. Last summer my friend called at short notice to come enjoy her night-blooming Cereus, whose bloom would only last the night. I hustled over and inhaled an exquisite fragrance not soon to be forgotten—or repeated. But imagine that kind of vesperal scent delivered each and every night. Enter Ballerina Mix: with upward-facing 6–8" petals in combinations of purple and white or cream with white that unfurl at dusk to exude a lily-like fragrance. Brava! Growing 3–4' in the garden, they thrive in summer heat and attract moth pollinators at night. When planted in containers they grow to a more manageable 2–3' and can be moved to where their fragrance will be most enjoyed at night. *Caution: All parts of these plants are poisonous* so use caution around children and pets. And hummingbirds have been known to OD if datura is their sole source of nectar. ① **NEW!**

5051 ***A**: 5 seeds, $4.00*
***B**: 20 seeds, $14.00*
***C**: 100 seeds, $60.00*

DELPHINIUM *D.* x *cultorum*

Perennial, Zones 3-7. The Pacific Giants were developed in California in the '40s. Magnificent dense racemes make delphinium excellent in the border and as a cutflower. The name comes from the Greek for 'dolphin' and refers to the shape of the spur containing the nectar. Large raceme with many flowers. All parts of the plant are toxic if ingested, and can cause skin irritation.
Culture: Old seed goes dormant and is very hard to reawaken so order fresh seed each year. Prechill seed for 2–4 weeks, then germinate at 65–75° and grow on at 50–60°. Likes sun, moist rich soil, can tolerate some shade. Heavy feeder; sidedress in spring with well-composted manure. Harvest when one quarter of the flowers are open. **~450 seeds/g.**



Astolat Pacific Giant Pastel mix in lilac, raspberry and rose with dark bees. 6'. ③

5052 ***A**: 0.2g, $2.50*
***B**: 0.6g, $4.60*
***C**: 1.8g, $9.50*

Black Knight Pacific Giant Intense dark purple with black bees. Stately and breathtaking. 6'. ③

5054 ***A**: 0.2g, $2.50*
***B**: 0.6g, $4.60*
***C**: 1.8g, $9.50*

Connecticut Yankee Mix Dwarfed version grows only 3'; good where wind is a problem. 1965 AAS in blue, purple, lavender and white. ③

5059 ***A**: 0.25g, $2.50*
***B**: 1g, $7.00*
***C**: 3g, $14.00*

DIANTHUS spp.

The name comes from the Greek meaning 'divine flowers.' Some are carnations; some are commonly known as Pinks, not for their color, but for their serrated petal tips which look like they've been cut with pinking shears. All have fabulous fragrance.

Double Choice Mix Sweet William *D. barbatus* Biennial, Zones 4-10. A fragrant self-sowing 18" biennial with familiar flat-topped flower clusters in red, pink, white, lavender or mixed colors. Germinates in 7–14 days at 70°. Started 2 months before setting outdoors, or direct seeded in late summer or fall. Requires full sun and good drainage; likes lime. ~930 seeds/g. ②

***5061 A**: 0.5g, $1.90 **B**: 7g, $3.40 **C**: 28g, $6.90*

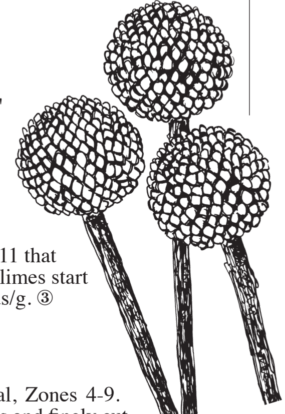
Reisen Giant Superb Mix *D. caryophyllus* Perennial in Zones 8-10, grown as an annual. 20" plants produce fully double fringed carnations in an array of colors (red, violet, rose, white and bicolor) with corresponding differences in fragrance. The perfumed clove scent of the red is the most tantalizing, reminiscent of the exquisitely scented flowers that one reads about in old horticultural lore. ~500 seeds/g. ③

***5063 A**: 0.2g, $2.60 **B**: 1g, $4.00 **C**: 3g, $7.00*

Rainbow Loveliness Mix *More like Rainbow Loneliness. Dropped.*

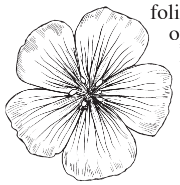
Lacy Blue Didiscus *Trachymene coerulea* (95 days) Annual. Also known as Blue Lace Flower, introduced from Australia in 1828. Looks like a light blue version of Queen Anne's Lace. Airy flower heads on 2' stems floating like a blue mist above attractive finely cut foliage are excellent for cutting. Start indoors or direct seed after danger of frost. Transplant 8" apart. Likes full sun. ~360 seeds/g. ③

***5067 A**: 0.25g, $2.30 **B**: 1g, $3.90*
***C**: 3g, $6.70 **D**: 15g, $16.00*



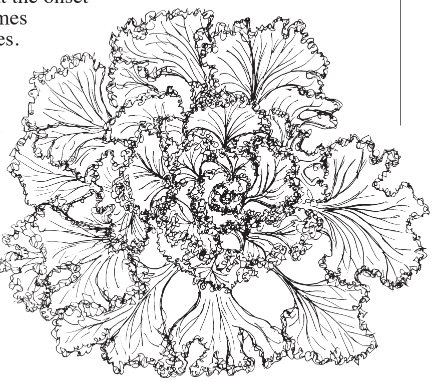
Drumstick Flower *Craspedia globosa* (100 days) Annual. Drumroll, please. The globular dimpled 3/4" yellow flower heads set atop durable 18" stems do look a bit like they could mark out a paradiddle or two. But better use would be as a carefree garden accent with a prolonged bloom, or brought inside in a long-lasting bouquet. They also dry with no fuss. Just stand them upright and they dry perfectly, retaining their color. A tender perennial in Zones 8–11 that blooms almost the entire season. In less temperate climes start indoors 6–8 weeks before the last frost. ~1,700 seeds/g. ③

***5072 A**: 0.1g, $2.60*
***B**: 0.3g, $6.00*
***C**: 1.2g, $19.00*



Blue Flax *Linum perenne* subsp. *lewisii* Perennial, Zones 4-9. Also known as Prairie Flax. Single light-blue flowers and finely cut foliage for borders or rock gardens. New flowers open every morning all summer, fade in afternoon heat. Likes full sun. Very drought tolerant. 9–12". Start indoors in a cool place 6–8 weeks before setting out or direct seed in cool soil in spring or fall. ~750 seeds/g. ②

***5079 A**: 1g, $2.20*
***B**: 7g, $3.60*
***C**: 28g, $7.00*



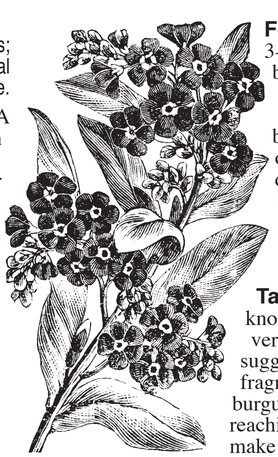
Flowering Cabbage Mix *Brassica oleracea* Biennial grown as an annual. Well adapted to cold climates, these ornamentals are at their best when most flowers have given in to fall frosts. The colors—green outer leaves and pink, white or purple centers—deepen at the onset of chilly autumnal nights. Sometimes used for garnishes or in salad mixes. Start indoors 5–7 weeks before setting out in midsummer for fall maturity. While weather is still hot, sidedress with manure so the plants will make rapid growth before nights begin cooling. As autumn approaches, withhold nitrogen to speed coloring. 10". ~350 seeds/g. ③

***5082 A**: 0.25g, $2.10*
***B**: 1g, $4.00*
***C**: 4g, $6.00*

Red Chidori Flowering Kale
Dropped by our supplier.

Help us support the next generation of farmers

We think a seed represents a relationship, not a commodity. The seeds we sow shape the future our descendants will inherit. As experienced organic farmers begin to retire, and as the youth raise their voices to demand a livable future, we all must commit to protecting our food supply. Consider donating to the nonprofit **Organic Farm School** (organicfarmschool.org) with your Seeds order, either online or on the Seeds order form, page 161, which will support tuition aid for new organic farmers to learn the trade.



Forget-Me-Not *Myosotis sylvatica* Perennial, Zones 3-9. The older I get, the more I want to be surrounded by plants that care for themselves. This little charmer, a biennial or short-lived perennial that self-seeds for many years, fits the bill. Excellent grown in a mixed border, where they peek out atop 6" stems with clusters of sky-blue color. They tolerate a wide range of conditions and grow in both sun and shade. Now if only I can remember not to weed them out the following spring. ~1600 seeds/g. ②

***5091 A**: 0.1g, $2.00 **B**: 0.5g, $4.00*
***C**: 3g, $6.50*

Tall Mix Four O'Clock *Mirabilis jalapa* Annual. Also known as Marvel of Peru. Breck's in 1885 called it "a very desirable plant where there is plenty of room," and suggests each specimen should stand singly 3' apart. The fragrant trumpet-shaped flowers, in bright shades of cerise, burgundy, pink, yellow and white, open in late afternoon, reaching peak glowing loveliness at dusk. The 2–3' plants make good background or annual hedge. Start indoors, transplant out when warm weather has settled in. Likes full sun. Will self-sow in warmer areas. Drought-tolerant. ~17 seeds/g. ②

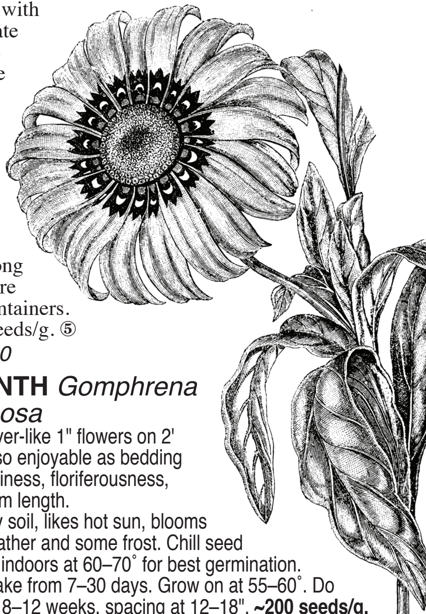
***5095 A**: 3g, $1.90 **B**: 9g, $3.50 **C**: 27g, $6.00*

Burgundy Gaillardia *G. aristata* Perennial, Zones 4-10. Also known as Blanketflower. When I first laid eyes on this in a nursery, it stood out from the pack. Burgundy has all the toughness of a prairie native enhanced with the solid deep wine color of a sophisticated garden-tour specimen. 3–4" daisy-like flowers bloom all summer on 2–3' plants. A favorite of butterflies and of gardeners who like to bring cutflowers inside. This fancy but low-maintenance cultivar likes light dry well-drained soil and full sun. Plant 18–24" apart. ~280 seeds/g. ✿ ③

***5097 A**: 0.25g, $2.40 **B**: 1g, $4.50 **C**: 4g, $8.00*

Lorenziana Double Mix Gaillardia *Gaillardia pulchella* Annual. This cultivar of a native flower has been around more than a century under different names, but it's a new discovery for us. The 2–3" quilled florets bloom in an array of red and golden hues on a 1x1' mounded plant. Quite the showstopper, Lorenziana got top ratings for its masses of blooms over a long period of time in Florida trials. In central Maine trials, too. The genus is salt tolerant, drought tolerant, deer proof, and—in the words of a Florida theme-park director—"butt hardy," meaning it can bounce back after people sit on it. Besides people, it also attracts bees, butterflies and birds. Good cutflower. Full sun. ✿ ③ **NEW!**

***5098 A**: 0.25g, $2.20 **B**: 1g, $4.00 **C**: 4g, $6.00*



New Day Formula Mix Gazania *G. rigens* Annual. Open-faced single blooms worship the sun in their daily salutations. Shades of bronze, orange, yellow, mauve, white and sepia all with yellow centers, and some with darkened petal bases, create a dynamic display. Its impressive drought tolerance shined with a steady bloom performance beginning in early July and continuing through the nearly rainless August and September. These easy-to-grow short 8–10" plants with leathery dark green leaves keep tidy along sunny garden edges and are ideal for color in patio containers. Coated seed. ~175–225 seeds/g. ⑤

***5100 A**: 0.1g, $2.60*

GLOBE AMARANTH *Gomphrena globosa*

Annual. Beautiful round clover-like 1" flowers on 2' stems perfect for drying. Also enjoyable as bedding plant. We've chosen for earliness, floriferousness, compact habit and good stem length.

Culture: Easily grown in any soil, likes hot sun, blooms prolifically. Tolerates dry weather and some frost. Chill seed 4–6 weeks at 40°, then start indoors at 60–70° for best germination. Germination is erratic; can take from 7–30 days. Grow on at 55–60°. Do not overwater. Transplant in 8–12 weeks, spacing at 12–18". **~200 seeds/g.**

Las Vegas Purple ②

***5102 A**: 0.1g, $2.80 **B**: 0.4g, $6.50*

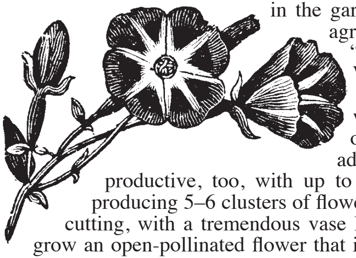
QIS Red Vibrant strawberry-red profuse blooms. QIS stands for Quality In Seed. Enormously popular with commercial growers. ③

***5104 A**: 0.1g, $2.10 **B**: 0.4g, $3.90 **C**: 1.2g, $6.60*

Las Vegas Mix Three vibrant colors: pink, purple and white. ②

***5109 A**: 0.1g, $2.70 **B**: 0.4g, $6.50 **C**: 1.2g, $15.00*

Grace Mix Godetia - Organic *Clarkia amoena* (90 days) Annual. Also called Farewell to Spring. Frank Morton, who's growing a lot of flowers these days, calls this *godetia* the most beautiful flower in the garden: "It took my breath away." We agree that these large and long-lasting 3" "satin flowers" are vastly underrated. With abundant blooms in red, pink, salmon, lavender and white, and with a bright red patch in the heart of the four petals, they make a lovely addition to the cottage garden. They're productive, too, with up to 15 stems on each 30" plant, each producing 5–6 clusters of flowers. And Grace is the best godetia for cutting, with a tremendous vase life. I was curious how Frank could grow an open-pollinated flower that is listed everywhere as a hybrid. His theory is that the initial cross was between closely related species, *C. a.* subsp *amoena* x *C. a.* subsp *whitneyi*, with the resultant color cavalcade continuing to be called a hybrid, even though it remained stable from that point on. And we get to enjoy the result. ①



***5111 A**: 25 seeds, \$3.50* *__B__: 100 seeds, \$9.00*
__C__: 400 seeds, \$25.00

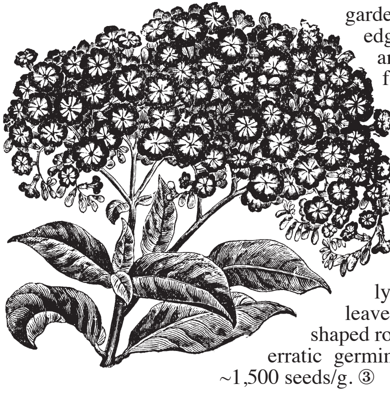
Helen's Flower Mix *Helenium autumnale* Perennial, Zones 3-10. Offered in the past as Sneezeweed. Supposedly used for snuff in earlier times, hence the sneeze. Also known as Sunny Bride. A rich chromatic scale of bronze, brown, crimson and yellow for an end-of-summer display. Single flowers cover the tops of branching upright 4–5' plants and resemble Coreopsis but have a large center "button" like a coneflower. Makes great late-season color. Not fussy, easy to grow, excellent for cutting. At its prime when most perennials have finished blooming. Generally a low germinator; needs 2–3 weeks. ~5,000 seeds/g. ③

***5119 A**: 0.05g, \$3.30* *__B__: 0.2g, \$9.60*

Sunburst Heliopsis *H. scabra* Perennial, Zones 4-9. A most unusual heliopsis that sports variegated foliage featuring patterned bright green veins etched against a white background. Masses of bright yellow daisy-like flowers with darker centers stand above the foliage to complete its arresting display. Bushy plant grows slowly the first year to 15–18" but continues up to 4' in subsequent seasons. Donna's first bloom was July 12 from an April 8 start. It was still flowering in October. ~230 seeds/g. ⑤

***5113 A**: 0.1g, \$3.80* *__B__: 0.4g, \$11.00* *__C__: 1.2g, \$28.00*

Marine Heliotrope *Heliotropium arborescens* (120 days) Tender perennial, Zone 9-10, grown as an annual. Native to Peru, an old-fashioned scented flower with a rich history. The aroma fills the garden on a cool damp day. Victorians edged their rose beds with heliotrope and it is still cultivated in Europe for perfumery. Smells like sweet violet, but deeper, and has been described as similar to vanilla, almond or cherry pie. Works well in hanging baskets, containers, the front of borders or any location where the scent will readily reach you. It may be transplanted indoors for the winter. 14–18" plants with deeply etched viburnum-like dark green leaves bear big flat clusters of tiny star-shaped royal blue flowers. Somewhat slow, erratic germinator, takes at least 2–3 weeks. ~1,500 seeds/g. ③



***5116 A**: 0.1g, \$2.50*
__B__: 0.6g, \$5.20
__C__: 3g, \$11.00

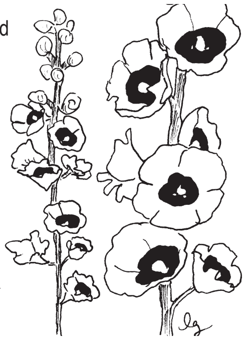
Luna Mix Hibiscus *H. moscheutos* Perennial, Zones 5-9. We of the foreshortened northern summers need a bit of the extravagant flounce of an hibiscus to put an exclamation point on the season. Luna plants fit the bill with 6–8" saucer-shaped flowers in a mix of pinks, red and white, with contrasting red eyes where a contrast is to be had. Though at 24–36" they are somewhat shorter than our previous selection, the big bushy 2' wide plants still make a dramatic statement. They have proved themselves winter hardy and become more resilient to water and drought stress once they're established. Emerge slowly in spring, like full sun. ⑤

***5120 A**: 10 seeds, \$6.00*
__B__: 30 seeds, \$14.00
__C__: 120 seeds, \$48.00

> If only the whole economy could run like fedco! I guess they would have to start by offering a product that people actually need, but it is great to see a business that allows for economic fairness for both the supplier and the purchaser, even if unfortunately it only exists in a microcosm.
> – Josh Eller, Ithaca, NY

HOLLYHOCK *Alcea rosea*

Biennial, Zones 3-8, often reseeds. An old-time favorite for background color. **Culture:** Needs staking. Cut flower stalk to induce rebloom. Likes full sun, lots of room, and moist soil. Seed may require alternate freezing and thawing to break dormancy. Start indoors in a 70˚ spot 2 months prior to transplanting. **~105 seeds/g.**



Chater's Double Mix Double flowered in shades of red, pink, yellow and white. Dates back to the 1880s. 4–5'. ③

***5122 A**: 1g, \$2.50*
__B__: 5g, \$5.00
__C__: 15g, \$10.00

Indian Spring Single Mix Old-fashioned single 7' beauty in shades of red, yellow, white and rose. Favored by hummingbirds. 1939 AAS. ✿ ②

***5124 A**: 1g, \$2.10*
__B__: 5g, \$3.60
__C__: 15g, \$7.00

Black Hollyhock *A. r.* var. *nigra* Heirloom with shimmering burgundy-black single flowers. Lasts 3–4 years in favorable conditions. Surface sow inside in April. Overly rich potting mixes will encourage damping off. May be the same black hollyhock grown by Thomas Jefferson at Monticello. ✿ ③

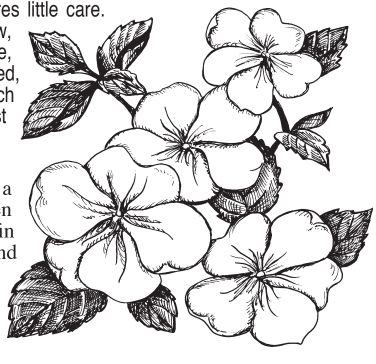
***5127 A**: 1g, \$2.20* *__B__: 5g, \$4.00* *__C__: 15g, \$8.00*

Honesty *Lunaria annua* Biennial, often grown as an annual, for everlasting arrangements. Also known as Silver Dollar, Moneyplant and Moonwort. Could be a solution to economic woes if only its shimmery silver seed pod "coins" were legal tender. Honesty is a winter-hardy biennial with fragrant lavender flowers usually grown for its large coin-shaped seed pods that shimmer in winter bouquets. Sow indoors at 65–70˚, grow on at 60˚ at night before setting out to a sunny location, or direct sow spring or fall. Depending on conditions, may not flower until second year. 3'. We thought they should plant Honesty at the White House until we remembered another name is Moneyplant. ~50 seeds/g. ②

***5132 A**: 1g, \$2.30* *__B__: 14g, \$4.60* *__C__: 42g, \$8.00*

IMPATIENS *I. walleriana*

Perennial in Zone 10, grown as an annual. Impatiens is named for the way its seeds pop explosively out of their ripe pods. Freely branching 8–10" plants.
Culture: Thrives in shade and requires little care. Start indoors, need light so surface-sow, 70-80˚, takes 14 days to germinate, provide even moisture, do not overfeed, set out after danger of frost. Pinch blooms before they go to seed for best display.
~1,600 seeds/g.

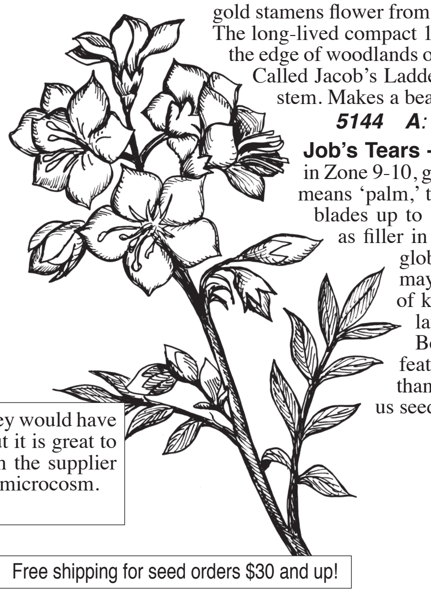


Paradise Mix F-1 hybrid. Bring a bit of tropical color into your garden with this mix from the Super Elfin series. Lavender, fuchsia, violet and cantaloupe-colored flowers. ⑤

***5142 A**: 0.03g, \$3.50*
__B__: 0.15g, \$10.00

Blue Pearl Jacob's Ladder *Polemonium caeruleum* (90 days) Perennial, Zones 3-8. A staple of the shade garden in cooler climes. Where so few plants flower, Blue Pearl shines. Sky blue 1–1$^{1}/_{2}$" cup-shaped blooms with distinctive gold stamens flower from late spring to early summer except in extreme heat. The long-lived compact 1' plants perform best in partially shaded borders, at the edge of woodlands or at the base of small shrubs or roses. Space 1' apart. Called Jacob's Ladder for the arrangement of parallel leaflets along the stem. Makes a beautiful cutflower. ~850 seeds/g. ③

***5144 A**: 0.1g, \$2.30* *__B__: 0.5g, \$4.20*

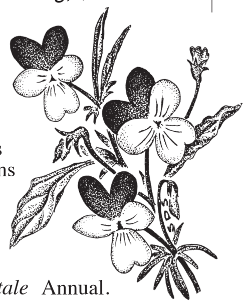


Job's Tears - Organic *Coix lacryma-jobi* (100 days) Perennial in Zone 9-10, grown as an annual. Named for the Greek *coix* which means 'palm,' this ornamental grass's foliage resembles corn with blades up to 1$^{1}/_{2}$" wide. Spiky 2–3' stalks good for planters or as filler in dried fall arrangements. Sets pendulous sprays of globular pearly purple-grey seeds, the tears, which may be strung as beads for necklaces. A great favorite of kids who love to harvest the seeds. Start indoors in late March or early April. Forgiving and easy to grow. Believed to be one of the oldest grasses in cultivation, featured in seed catalogs for almost two centuries. Our thanks to Alicia McDonald of Whately, MA, who sent us seed. ~5 seeds/g. ①

***5147 A**: 2g, \$2.30*
__B__: 6g, \$4.50
__C__: 24g, \$12.00

Joe Pye Weed *Eutrochium purpureum* Perennial, Zones 4-9. Formerly *Eupatorium*. Also known as Queen of the Meadow or Gravel Root. Tall, stately and beautiful native with dense florets of dusty pinkish-purple flowers and foliage that releases the scent of vanilla when crushed. At 5–9' tall, makes an impressive background plant and a good cutflower. Medicinally, the root is used to treat chronic irritable bladder, urinary infections, kidney stones, menstrual cramps and prostate infections. Also stimulates circulation and reduces inflammation. Does best in moist well-drained areas, full sun or part shade. Surface sow in spring or fall; needs stratification unless sown in fall; takes 3 weeks to germinate; direct seed or transplant. ~2,809 seeds/g. ✿ ②

5150 **A**: 0.02g, $2.20 **B**: 0.1g, $4.20 **C**: 0.4g, $7.00



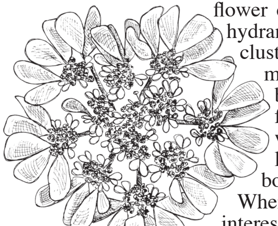
Helen Mount Johnny-Jump-Up *Viola tricolor* Perennial, Zones 3-9. Also known as Heartsease Pansy. This 4–6" favorite bears tricolor blooms in violet, lavender and canary yellow. Small abundant flowers like partial shade. Can be direct seeded early spring for flowers late in season or sown in fall for earlier blooms the following year. Some call it invasive, others enjoy its cheerful spreading habit. Flowers make edible decorations with a faint wintergreen taste. ~900 seeds/g. ②

5152 **A**: 0.5g, $2.10 **B**: 1.5g, $3.80 **C**: 4.5g, $6.00

Kiss-Me-over-the-Garden-Gate *Polygonum orientale* Annual. It is easy to imagine an amorous meeting amongst the shelter of these 6–7' annuals, surrounded by heart-shaped leaves and large tassels of lightly scented pink blossoms! Looks like a beautiful giant Smartweed. Although transplanting temporarily sets it back, it grows vigorously to take up a full square yard at maximum size. Blooms from July to frost, sometimes self-sows. Start indoors at 70–75°, covering the seed, keeping soil moist till emergence. Fussy, slow, erratic germinator. Germination can be improved by stratifying for 3 weeks. Likes full sun or light shade. Native to China. Offered by Burpee in 1935 for 15¢ per packet as Ruby Gem. ~20 seeds/g. ①

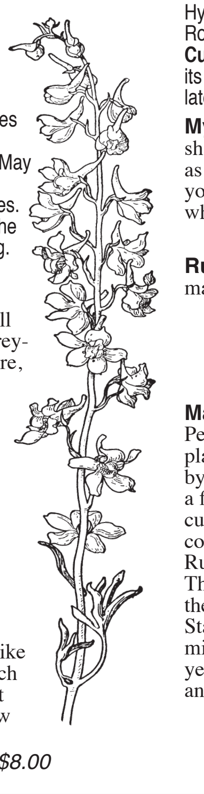
5154 **A**: 1g, $2.60 **B**: 3g, $4.80 **C**: 12g, $9.00

White Finch Laceflower - Organic *Orlaya grandiflora* (65-70 days) Annual. Though the bird hails from Australia, with this beauty in your garden, you can add white finches to your backyard annual count. The White Finch flower exhibits a dainty delicacy resembling lace-cap hydrangea, with the central florets of a flat-topped cluster surrounded by a ring of larger flowers that might, poetically, resemble the fluttering of birds' wings. The plant stands tall at 2–3' with ferny foliage and sturdy stems. Deadheading will keep the flowers coming until frost. For long-lasting enjoyment as an airy addition in bouquets, harvest before the pollen starts to shed. When dried, the seed pods can also be arranged to interesting effect. Best direct seeded. Full sun. ①



5157 **A**: 25 seeds, $2.90 **B**: 100 seeds, $7.50 **C**: 400 seeds, $20.00

LARKSPUR *Consolida* spp.



Annual. Formerly known as *Delphinium consolida*. Delphinium-like long-stemmed flower spikes are used as cutflowers or in dried arrangements. Upright 3–4' tall plants. The Giant Imperial series features long racemes of double flowers.

Culture: Likes cool moist conditions. Very slow to give in to fall frosts. May be direct seeded in early spring or started indoors and grown on at 55° and set out in 8 weeks. Does not germinate well in warmer temperatures. Refrigerating for a week improves germination. Cut when one third of the flowers on the stem are open; vase life is 6–8 days. Excellent for drying. Self-sows readily. **~330 seeds/g** except for Blue Cloud.

Earl Grey *C. ajacis* For that kind of cloudy day on the Maine coast when subtle "cool" colors come into their own and the chill invites you to curl up with a cup of Earl Grey tea. This pearly grey-lavender larkspur on tall stalks fits nicely into such an atmosphere, its delicate shades revealing their shimmering clarity. Maybe enjoying them in a bouquet is your cup of tea. ③

5160 **A**: 0.1g, $2.20 **B**: 0.5g, $4.20 **C**: 3g, $9.00 **D**: 12g, $28.00

Giant Imperial Blue Spire *C. a.* Dark blue. ③

5162 **A**: 1g, $2.30 **B**: 4g, $4.20 **C**: 16g, $8.00 **D**: 64g, $25.00

Giant Imperial Mixed *C. a.* Pinks, purples, blues and white make a beautiful background and are good for cutting. ②

5168 **A**: 1g, $2.30 **B**: 4g, $4.00 **C**: 16g, $7.00 **D**: 4oz, $22.00

Blue Cloud *C. regalis* Blue Cloud doesn't shoot up a single spike like most larkspurs. Instead it sends flocks of bushy 5-petaled rich blue 1/2" florets on wispy foliage, which en masse give the effect of clouds. Its tiny seed pods are equally decorative. Will self-sow vigorously. ~800 seeds/g. ③

5169 **A**: 0.1g, $2.20 **B**: 0.5g, $3.90 **C**: 5g, $8.00 **D**: 50g, $22.00

Lavatera Mix *L. trimestris* Annual. Also known as Herb Treemallow. Every stalk is covered with single funnel-shaped blossoms. An explosion of exotic blooms in mostly pink shades, some light and some dark, and the remainder white on 2' tall bushy plants, great for borders. Cut when flowers are unfurling or have just begun to bloom. Vase life is at least one week. Will survive light fall frosts. Botanical name honors 16th-c. Swiss naturalist brothers Lavater, and its three-month bloom time in warmer climes. Start indoors at 70–72° 8 weeks before setting out, growing on at 65–70° days and 60° nights, or direct seed in sunny spot. Space 18–24". ~150 seeds/g. ②

5171 **A**: 1g, $2.00 **B**: 4g, $3.90 **C**: 16g, $6.00

Lavender: See 4585 and 4586 p. 83 in the Herb Section.

Crystal Palace Blue Lobelia *L. erinus* Perennial in Zones 9-10, grown as an annual. With bronze-green foliage and a profusion of stunning deep blue flowers, this is the perfect window-box plant. 4" tall, great for edgings, walks and borders. An old variety, offered by Henderson in 1902 for a dime per packet. Named for the Flemish botanist Mathias de l'Obel who was a physician to King James I of England. Needs light to germinate. Tolerates some shade. Cannot stand frost. ~30,000 seeds/g. ③

5180 **A**: 0.2g, $2.20 **B**: 1g, $4.50 **C**: 4g, $7.50 **D**: 28g, $30.00

LOVE-IN-A-MIST *Nigella* spp.

Annual. Everlasting grown especially for its spiky decorative seed pods. Germinates 10–14 days at 60°. Grow on at 60–65°. Set transplants 6–9" apart.

Persian Jewels Mix *N. damascena* (70 days) Profuse blooms in pink, blue and white shades surrounded by a cloud of greenery make lovely bouquets. Seed heads are used dried and are especially fetching with a little bit of the flower attached. Direct seed as soon as ground can be worked, or sow indoors in a cool spot 2 months prior to setting out. Plant in full sun. 18". ~760 seeds/g. ②

5184 **A**: 0.4g, $2.00 **B**: 2g, $3.50 **C**: 14g, $7.00

Exotic *N. hispanica* Exotic's golden-brown pods are similar to velvetleaf's wonderful starry seed pods except with long fancy tendrils. Will add interest and volume to any dried arrangement. Unlike velvetleaf, this annual won't be a nuisance in the field. Doubles as a cutflower with open form, striking maroon stamens and an arresting shade of deep blue, almost purple. Atop 16" stems, the blossoms hold longer in a bouquet than other kinds of Love-in-a-Mist. Likes full sun or light shade. ~900 seeds/g. ③

5187 **A**: 0.1g, $2.20 **B**: 0.4g, $4.70 **C**: 2g, $12.00

LUPINE *Lupinus polyphyllus*

Perennial, Zones 4-9. Lupine fanatic George Russell of York, England, bred Russell Hybrids Choice Mix, introduced it in 1937 and won the coveted Gold Medal from the Royal Horticultural Society. Dense spikes with large flowers in full range of colors.

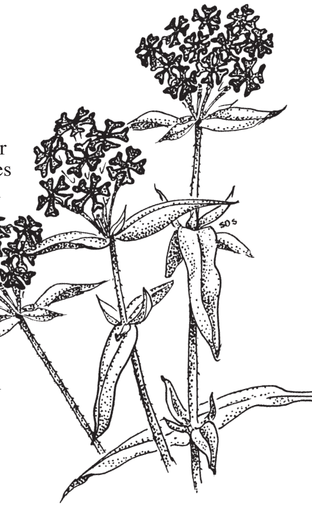
Culture: Likes a cool moist spot in full sun, preferring sandy soil with ample room for its roots to spread. Can be sown indoors in late winter, or outdoors in early spring or late fall. 3'. Seeds and seed pods are poisonous. ~35 seeds/g.

My Castle Red Russell In most lupine mixes the red shades are overshadowed by a preponderance of blues. The genetics of lupines are such that, as a patch crosses and self-sows, over time the blues will dominate. So now you can revitalize your patch with a new burst of red. Or, grown separately where they will not cross, you can maintain a solely red patch. ③

5195 **A**: 1g, $2.30 **B**: 4g, $5.00 **C**: 16g, $9.00

Russell Hybrids Choice Mix Mostly purple blooms with some bicolors in magenta, white and pink. ③

5199 **A**: 1.4g, $2.10 **B**: 7g, $4.00 **C**: 28g, $7.50



Maltese Cross *Lychnis chalcedonica* Perennial, Zones 3-10. Desirable 3' border plant attracts hummingbirds and butterflies by producing brilliant scarlet florets, each a five-part cross. Excellent for cutflowers. Makes a hot color combination with Rudbeckia and Coreopsis. Thomas Jefferson grew these at Monticello in 1807. Start indoors in early spring or midsummer for blooms next year. Do not cover seeds. Likes moist soil and full sun. ~2,000 seeds/g. ✿ ③

5203 **A**: 0.4g, $2.00 **B**: 2g, $3.50 **C**: 6g, $6.00

MARIGOLD *Tagetes* spp.

Annual. "We do not consider a flower garden complete without the good old-fashioned French and African marigolds." –Breck's, 1885. Good for bedding, for cuts, in planters or borders. Their warm colors cheer all summer long and positively blaze in the light of early autumn. Native to the Americas and said to have been sacred to the Aztecs. In 1939 Burpee's Red and Gold hybrid was the first hybrid flower from seed offered commercially in the United States.

Culture: Fast and easy to grow from seed. Sow after soil has warmed, or inside in a warm (75–80˚) spot, 3 weeks before setting out after danger of frost. Likes heat and full sun. Tolerant to drought. **~300 seeds/g** unless otherwise noted.

AFRICAN MARIGOLD *T. erecta*

Tallest of the marigolds with largest leaves and flowers. Blooms are fully double and 3–4" across, resembling carnations. Plants make a bold highlight in large borders and crank out cuts.

Crackerjack Mix Early mix of orange, gold, yellow. Large fully double flowers on tall 30" plants that rarely need staking. ③

5211 ***A**: 1g, $2.00* ***B**: 14g, $4.00* ***C**: 56g, $7.50*

First Lady 1968 AAS, later voted the all-time favorite AAS flower. Lovely 20" border or hedge plant, covered with sunny yellow 3½" double flowers that keep coming till frost. ⑤

5213 ***A**: 0.1g, $3.40* ***B**: 1g, $18.00*

Inca II Mix Fitting sequel to the original Inca series, but stronger, earlier by 7–10 days, and more compact with a new primrose-yellow joining the original yellow, orange and gold. Produces enormous 4" fully double brilliantly colored blooms. Great for massed borders, these compact 12x14" plants allow you to pack them in. Remove spent flowers to promote new blossoms and maintain a clean look. Likes moist well-drained soil. Withstood the 2011 hurricane deluges with exceptional aplomb. ~400s/g. ⑤

5216 ***A**: 0.1g, $3.50* ***B**: 0.3g, $8.00* ***C**: 1.2g, $22.00*

Vanilla Formerly known as Sweet Cream and actually resembles sweet creamy farm milk—outstanding off-white color. Profuse large 3–4" double blooms on stocky 18" plants until frost. Use for cutting or keep deadheaded to maintain Vanilla's classy good looks. ⑤

5219 ***A**: 0.05g, $3.60* ***B**: 0.2g, $9.00*

FRENCH MARIGOLD *T. patula*

Small bushy plants with flowers approximately 2" across in a wide range of colors including yellows, oranges, rich reds, mahogany and bicolors. Bloom styles, depending on the cultivar, can be single, crested, semi-double or fully double. Outstanding edging plants bloom early summer till frost and stand well in all weather.

Bambino This darling's variegated petals of dark and light orange swirl around an orange center button, giving the effect of a tiny circus tent. Plentiful 2½" single-petaled flowers set early on a semi-mounded 8" bush. Blooms strong until frost, championing orange in the garden till the pumpkins take over. ③

5222 ***A**: 0.5g, $2.80* ***B**: 2.5g, $5.00* ***C**: 15g, $10.00*

Brocade Mix Abundant color on neat, compact 10" plants. Ruffled double flowers in rust, yellow, orange, red and bicolors. ③

5224 ***A**: 0.5g, $2.40* ***B**: 7g, $4.00* ***C**: 28g, $7.00*

Court Jester (100 days) It's worth juggling garden space to make room for this jester, whose bright stripes of burgundy and yellow will keep you entertained into the fall. Many small single striped flowers dance atop a 20" tall plant and make alluring additions to bouquets as well. ~360 seeds/g. ③

5226 ***A**: 1g, $2.40*
***B**: 3g, $4.20*
***C**: 9g, $7.00*

Lemondrop A beautiful true yellow extra-dwarf crested variety. Blooms early, through summer into fall. Only 6–8" tall. ~640 seeds/g. ③

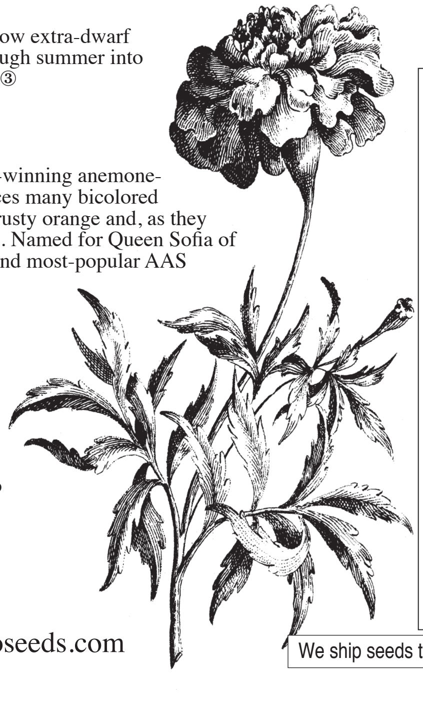
5229 ***A**: 1g, $2.00*
***B**: 7g, $4.50*
***C**: 28g, $12.00*

Queen Sophia (60 days) Award-winning anemone-flowered dwarf. Each plant produces many bicolored double blooms. Flowers are deep rusty orange and, as they mature, petals are edged with gold. Named for Queen Sofia of Spain. 1979 AAS, later voted second most-popular AAS flower. 10–12". ③

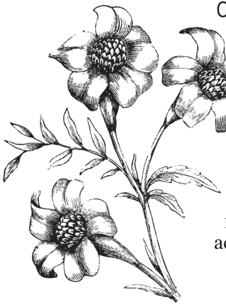
5231 ***A**: 0.7g, $2.70*
***B**: 3.5g, $7.00*
***C**: 14g, $13.00*

Sparky Mix Combines yellow, gold, orange and red blooms on free-flowering compact 10–12" plants. Double flowers are 2–2½" wide with smoother petals than Brocade. Darold Decker intro from the late '50s. ②

5235 ***A**: 1g, $2.00*
***B**: 7g, $4.00*
***C**: 28g, $6.00*



SIGNET MARIGOLD *T. tenuifolia*



Also known as Gems, once known as Mexican marigolds, date back to 1798. Bloom prolifically with edible ¾" single flowers with yellow centers and a citrusy fragrance. Compact mounded plants have finely cut ferny foliage. They don't need deadheading, but benefit from a light shearing in hot weather and from watering in dry spells. **~1000 seeds/g.**

Lemon Gem (68 days) Compact 10–12" plant bears tiny bright lemon-yellow flowers early, through summer, into fall. ③

5243 ***A**: 0.5g, $2.40* ***B**: 1.5g, $4.50*
***C**: 6g, $8.00* ***D**: 24g, $20.00*

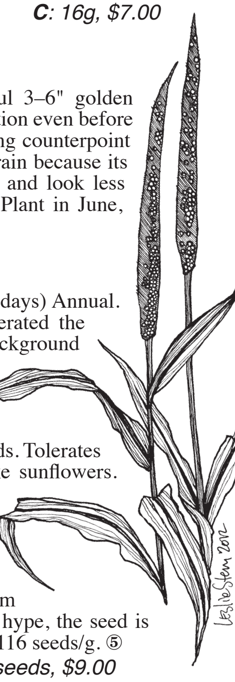
Tangerine Gem (68 days) As above, but the tiny fragrant flowers are deep orange. They make colorful tasty additions to salads. ③

5246 ***A**: 0.5g, $2.40* ***B**: 1.5g, $4.50*
***C**: 6g, $8.00* ***D**: 24g, $20.00*

Mignonette *Reseda odorata* Annual. "Mignonette should not be forgotten, on account of its delicious odor." –Breck's, 1885. Once fashionable on the balconies of Paris, popular enough to command 7 listings in Burpee's 1935 catalog. Among the most fragrant, and beloved by honeybees, its insignificant yellow-green blossoms send the enticing scent of raspberries wafting through the air. Less than a foot high, it can be grown in pots and moved for best effect; however, its scent will fade if it is removed from full-day sun. Direct seed; do not cover. Make succession plantings for continuous blooms. Prefers fertile well-drained soil and cool weather. Burpee claimed a light sandy soil brings out its most pronounced perfume. ~750 seeds/g. ✿ ③

5255 ***A**: 1g, $2.00* ***B**: 4g, $4.00* ***C**: 16g, $7.00*
***D**: 64g, $15.00*

ORNAMENTAL MILLET



Foxtail Millet *Setaria italica* Annual. Its graceful 3–6" golden seedheads bobbing on an August breeze attract attention even before harvest. After harvest, Foxtail Millet makes a striking counterpoint in floral displays. Customers ask for this specific strain because its heads, covered with golden-russet hairs, are softer and look less seedy than other types. Formerly *S. macrochaeta*. Plant in June, harvest mid to late August. ~450 seeds/g. ③

5257 ***A**: 1g, $2.80* ***B**: 4g, $7.00*
***C**: 28g, $40.00*

Purple Majesty Millet *Pennisetum glaucum* (120 days) Annual. This 2003 AAS award-winning pearl millet accelerated the ornamental-grasses trend. Distinguished 3–5' tall background plant with deep-purple, almost black, corn-like foliage has purple seed spikes nearly a foot tall and an inch around. The immature plumes, looking like purple cattails, can be used in arrangements or left on the plant to attract birds. Tolerates hot dry weather, likes sun and can be cultured like sunflowers. Pamela and Frank Arnosky, in *Growing for Market*, reported that it was a sensational seller. However, they cautioned that some cuts left in their packing shed for a few days turned solid yellow with pollen that had an odor like burnt antifreeze. They advised cutting the spikes immature, just as they emerge from the last leaf, to circumvent the pollen. With all the hype, the seed is exorbitantly expensive, so we pack by seed count. ~116 seeds/g. ⑤

5259 ***A**: 6 seeds, $3.00* ***B**: 24 seeds, $9.00*
***C**: 72 seeds, $22.00*

Seed Longevity for Herbs and Flowers

We have integrated results from several tables with our own first-hand knowledge from testing old lots for germination. Seeds stored in less-than-ideal conditions will have shorter life spans. Plant name is followed by years.

achillea	2	daisy	3	nicotiana	3
alyssum	3	delphinium	1	nigella	1
amaranth	3-5	dianthus	3	oregano	2
anise	3	didiscus	3	pansy	2
aster	1	dill	3	petunia(unpelleted)	5
baby's breath	2	fennel	3	phlox	1
bachelor's button	3	four o'clock	2	poppy	3
basil	5+	gaillardia	2	sage	3
borage	5+	hollyhock	3	salpiglossis	3-5
calendula	3	honesty	2	salvia	1
campanula	3	impatiens	2	savory	3
caraway	3	larkspur	1	snapdragon	3
catnip	5	lavatera	3-5	statice	2
celosia	3-5	lavender	5	stock	3
chinese lantern	1	lemon balm	5	strawflower	2
chives	1	lobelia	3	sweet pea	3
cilantro	5+	lupine	2	sunflower	3
columbine	2	marigold	3	thyme	3
coreopsis	2	marjoram	3	tithonia	2
dahlia	2	nasturtium	3-5	zinnia	3-5

We ship seeds to Canada!

MORNING GLORY *Ipomoea* spp.

Annual. Easily grown climber with trumpet-shaped flowers provides color and shade, decorates fence or post.
Culture: Plant with eastern exposure for best results. Nick the seeds with a file and soak overnight to speed germination. Germinates in 2 weeks at 75–80˚. Sow outdoors after danger of frost or indoors in peat pots as they resent transplanting. Overly rich soil will yield excess foliage and sparse blooms. **~25 seeds/g.**

Flying Saucers *I. nil* Seedsman Darold Decker created these gaudy 4" open trumpets just three years after the Russians sent Sputnik into orbit. Bicolor features clear white cups streaked with sky blue. The swirly blue patterns create the ethereal saucer effect that inspired its name. Can be brought inside in the bud stage for a week-long show as the amazing blossoms unfurl their patterns. Climbing vine grows 8–10'. ⑤

5271 ***A**: 1.5g, $2.10* ***B**: 6g, $4.20*
***C**: 18g, $7.00* ***D**: 54g, $14.00*

Sunrise Serenade *I. n.* A recently rediscovered heirloom double morning glory. I first caught a glimpse of an unstaked plant snaking along in the undergrowth of a friend's garden and was arrested by the large 1–3" ruby-red blooms with white throats. As I bent closer, I was amazed by the frilly slightly wavy extra petals. A vigorous 12–15' plant, it needs to be tied up in order to "climb." When thus displayed, the flowers contrast nicely with the heart-shaped green leaves. Often the first morning glory to bloom, also stays open longer than the singles. Packet has ~11-14 seeds. ⑤

5274 ***A**: 0.3g, $2.60* ***B**: 1.2g, $7.00* ***C**: 6g, $15.00*

Carnevale di Venezia Striped Mix *I. purpurea*. Party's over—*dropped*.

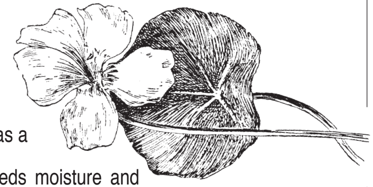
Kniola's Purple - Organic *I. purpurea* (50 days) Beautiful glowing rich deep purple flowers vibrate against lush green foliage. Unlike most other morning glories, Kniola's starts blooming while it is only 2' tall and still vining. As the vines climb on to 8–9', the blooms continue, lasting the entire season. The deep flowers have a magenta star that radiates out from their pale pink-white throats. An heirloom discovered by Mr. Kniola at an abandoned farm in Indiana. Nicholas Lindholm acquired seed from J.L. Hudson in 1993, thence passed it on to Roberta Bailey who has been maintaining it and culling out the magenta off-types. ①

5277 ***A**: 0.5g, $4.50* ***B**: 2g, $12.00* ***C**: 4g, $18.00*

Clarke's Heavenly Blue *I. tricolor* (115 days) Classic morning glory. Intense azure blooms lighten toward center; a sun-loving vine. 12'. ③

5279 ***A**: 3.5g, $2.20* ***B**: 14g, $4.00* ***C**: 56g, $9.00*
***D**: 1#, $34.00*

NASTURTIUM *Tropaeolum* spp.



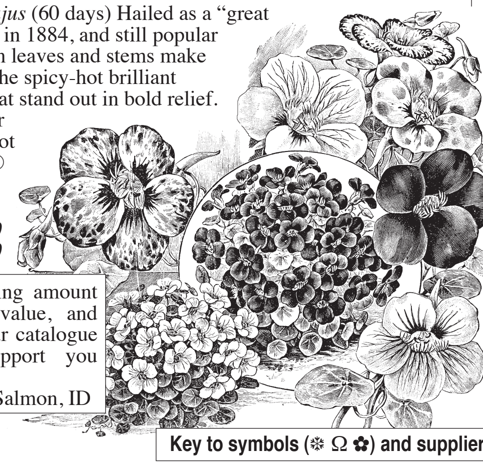
Annual. The name literally means 'twisted nose,' from the Latin *nasus* for nose and *tortus* for twist. Edible flowers with spicy sweet fragrance lend a peppery-sweet taste to salads, with each color adding contrast and subtle variations in flavor. Round leaves also edible. Formerly used as a remedy against scurvy.
Culture: Blooms keep coming if cut, needs moisture and cool temperatures for optimal blooming. Intolerant of frost. Germinates 7–10 days at 65˚. Cover the seed. Avoid excess nitrogen, but don't relegate nasties to the worst soil. Likes full sun. Start indoors or direct seed after last frost. **~6 seeds/g.**

Alaska Mix *T. majus* (60 days) Striking variegated green and white foliage will make a formidable bush if you feed it heavily. But go easy on the nitrogen if you want to eat lots of its tangy yellow and orange blossoms. A great plant for hanging baskets. 16". ②

5280 ***A**: 2g, $2.00* ***B**: 8g, $3.50*
***C**: 24g, $4.80* ***D**: 1#, $35.00*

Empress of India *T. majus* (60 days) Hailed as a "great novelty" when introduced in 1884, and still popular today. Dark purplish-green leaves and stems make a perfect background for the spicy-hot brilliant crimson-scarlet flowers that stand out in bold relief. A good contrast with other nasturtium varieties. Do not feed heavily. 16" plants. ②

5282 ***A**: 3g, $2.00*
***B**: 9g, $4.00*
***C**: 27g, $5.60*
***D**: 1#, $42.00*



> You put such an inspiring amount of intention, thought, value, and downright style into your catalogue and business. We support you because you support us.
> – Jessica McAleese, Salmon, ID

Jewel Mix *T. majus* (42 days) Bushy variety holds its blooms above the foliage. Early free-flowering blend of orange, yellow, red and gold. Long our best-selling flower variety. 16". ②

5288 ***A**: 4g, $2.00* ***B**: 16g, $3.80* ***C**: 64g, $8.50*
***D**: 1#, $34.00*

Tall Climbing Mix *T. majus* (65 days) Tall trailing mix to 4–6' in red, orange, gold and exquisite bicolor shades. Plants will spread and fill in a huge space but having no tendrils cannot, strictly speaking, climb. The most prolific blossom set of any of the nasturtiums we have tried. ②

5291 ***A**: 4g, $2.00* ***B**: 28g, $4.60* ***C**: 84g, $9.00*
***D**: 1#, $30.00*

Peach Melba *T. minus* (60 days) Named for the dessert—peaches with raspberry sauce—that Escoffier created to honor 19th-century operatic soprano Nellie Melba. Recommended by Eva Sommaripa and other growers who treasure its unique delicacy. Primrose-cream blossoms with pearly red centers look like miniature cut peaches with dollops of sauce. Sets its abundant blooms above the compact lily-pad foliage. ②

5293 ***A**: 3g, $2.50* ***B**: 9g, $5.60* ***C**: 27g, $12.00*
***D**: 81g, $29.00*

Whirlybird 7-Color Blend *T. minus* (60 days) Has large spurless upward-facing flowers borne above the foliage. Compact non-trailing plant habit. Recommended for commercial growers. 12" plants. ③

5295 ***A**: 2g, $2.10* ***B**: 6g, $4.20*
***C**: 24g, $9.00* ***D**: 1#, $62.00*

Only the Lonely Nicotiana - Organic *N. sylvestris* Annual. Arrived in cultivation from Argentina in 1899 and offered by Geo. B. Haskell Co. of Lewiston, ME, for a nickel per packet in 1904. Also known as Woodland Tobacco, featuring clusters of drooping tubular white blossoms that perfume the garden day and night. In dwarfing nicotiana, breeders took away its fabulous fragrance. Lonely, a stately 5', delivers the full powerful scent its more compact cousins lack. Plant it near a door or under your bedroom window where you can enjoy the aroma during the night. Germination is 10–12 days at 65–70˚. Light enhances germination. Grow on at 50–55˚. ~29,000 seeds/g. ①

5300 ***A**: 1g, $2.40*
***B**: 4g, $5.60*
***C**: 16g, $18.00*

Royale Mix Painted Tongue *Salpiglossis sinuata* Annual from the Andes noted for its exquisite velvety texture. Popular as a cutting flower in Victorian times, it was often planted in geometric patterns in an art form known as mosaiculture. Extremely floriferous 15–20" plants produce masses of elegant 3" trumpet flowers in a broad range of colors from chocolate, red, purple and yellow to purple-orange and pale blue bicolors. Germinates in 15 days at 70˚. Likes long days, lots of light and cool nighttime temperatures (50˚) to grow on. Set out in a location with partial shade, good drainage and protection from the wind. Deadheading prolongs blooms. ~4,500 seeds/g. ④

5303 ***A**: 0.01g, $3.60* ***B**: 0.05g, $9.00*

PANSY *Viola* spp.

Annual or short-lived perennial. Burpee's in 1888 called the pansy "the most popular of all flowers grown from seed," and sold more than 100,000 packets per year. James Vick's Sons sold 27 different kinds and mixtures in 1895. For thoughts, remembrance, from the French *pensée*.
Culture: Old-fashioned bedding plant thrives in cool moist conditions. Start in a cool (60–65˚) place 2 months prior to planting. Cover seed to germinate. Takes about 12 days. Grow on in very cool temperatures—preferably below 50˚. Likes partial sun. **~700 seeds/g except where noted.**
See p. 95 for **5152** Johnny-Jump-Up, *V. tricolor*.

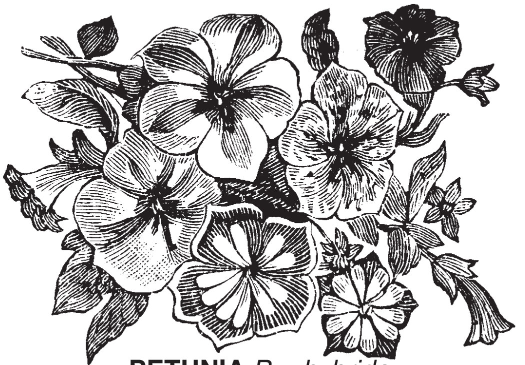
Brush Strokes V. *cornuta* As if an artist had taken a fine brush to lay delicate bright stripes on its palette of solid colors. Purple, pink, yellow and light blue striped with white and yellow strokes. Donna Dyrek's blossomed the first of July from an April 8 start. Pansies are among the first to revive in the spring. Dwarf 6" plants with large fragrant faces. ~1,100 seeds/g. ⑤

5305 ***A**: 0.02g, $3.10* ***B**: 0.1g, $6.30* ***C**: 0.4g, $13.50*

Frizzle Sizzle Pansy *V.* x *wittrockiana* After a drear mud season put a little razzle-dazzle in your spring and early summer garden. Heart-shaped leaves on mounded 4–6" plants are covered with a splendid panoply of 3" mostly bicolor flowers, with darker whiskers and yellow eyes to dress up their array—in lemonade, orange, raspberry, blue, yellows, and white. Just imagine these edible beauties on a salad. And they're slightly fragrant too! Perennial in Zones 6-8. In a colder zone, increase the likelihood of plants overwintering by covering them with a straw mulch. ⑤

5308 ***A**: 0.02g, $4.00* ***B**: 0.1g, $12.50* ***C**: 0.4g, $30.00*

Pearly Everlasting *Anaphalis margaritacea* Nothing lasts forever. *Dropped*.



PETUNIA *P.* x *hybrida*

Annual. "If I were limited to one flower with which to decorate my home I would choose Petunias." –Park's Flower Book, 1934.
Culture: Start indoors at 70–75˚ and grow on at same temperature for 8 weeks before setting out after danger of frost. Do not cover seeds; light aids germination. Use loose medium and avoid overwatering. Drought-tolerant sun lovers. **All F-1 hybrids. ~10,000 seeds/g.**

Daddy Mix Very showy grandiflora has big 4" ruffled blooms in shades of light blue, orchid, peppermint, pink, plum and strawberry with darker veins. Stunning in baskets, these uniform plants also exhibit good weather-tolerance when planted in full sun. 12–15". ⑤

5321 **A**: 0.03g, $4.20 **B**: 0.12g, $14.00

Wave® Series Spreading Petunia

Our customers have caught The Wave. Each slightly mounded plant carpets the ground with a 4x4' spread of vivid color. This versatile landscaping tool can be used as a low hedge, as a ground cover, or trailing from pots. Wave showed extreme drought tolerance in our trial, sailed through light frost, and bounced back after torrential rain. Although never deadheaded or cut back, the 3" flowers just kept coming and coming.
Culture: Plant in full sun where its robust performance and light fragrance can sweep you away. All varieties pelleted seed, packed by count and shipped in protective vials so none get crushed.

Easy Wave Blue Suggested by Nan King of Walpole, NH. She prefers this Wave's mounding plant habit to that of Purple, finding it less rangy, more floriferous, and the foliage better at covering the underpinnings. Has bluish-purple flowers. ⑤

5323 **A**: 10 seeds, $3.50 **B**: 40 seeds, $12.00

Wave Pink Pink, with white throats. ⑤

5325 **A**: 10 seeds, $3.50 **B**: 40 seeds, $12.00

Wave Purple Classic Vivid fuchsia. 1995 AAS. ⑤

5326 **A**: 10 seeds, $3.50 **B**: 40 seeds, $12.00

Tidal Wave Silver Despite its name, more a very pale purple than silver, with darker purple veining. 2002 AAS. ⑤

5328 **A**: 10 seeds, $3.50 **B**: 40 seeds, $12.00

Phacelia - Organic *P. tanacetifolia* Annual. Also called Fiddleneck. The small frizzy curling lavender-blue sprays of this bushy 18–30" annual bloom for two months and provide high-quality pollen and nectar, making it a most popular insectary plant for honeybees, bumblebees and syrphid flies. Phacelia honey is clear and delicate. Flowering begins 6–8 weeks after germination, though the plant needs 13 hours of daylight to bloom. Used as a cover crop or intercropped in row plantings, it can increase beneficial insect diversity and populations in gardens, fields, orchards and vineyards while suppressing weeds. It winterkills at 18° and can be turned under. Feathery leaves look similar to Sweet Cicely. Seed will germinate in cold soils. Thrives in dry to moist soils. ~280 seeds/g. ✿ ①

5331 **A**: 1g, $2.50 **B**: 4g, $5.00 **C**: 20g, $10.00

PHLOX spp.

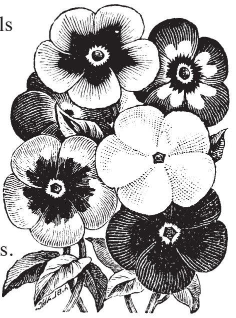
Breck's sold 15 different kinds in 1885. The word phlox signifies 'a flame.' Phlox is among the most colorful flowers for summer and fall beds, borders or pots.
Culture: Start early indoors or direct sow in spring. Likes moist well-drained soil in full sun. One of the longest lasting in the vase. About the last to succumb to frost.

Drummondii Mix *P. drummondii* Annual. Enchanting fragrance from this 24" sprawling phlox with large umbels full of blooms in crimson, scarlet, pink, white, lavender, and bicolor combinations with dark and white eyes. ~500 seeds/g. ②

5335 **A**: 0.4g, $2.00 **B**: 2g, $3.50 **C**: 8g, $7.00

New Hybrids Mix *P. paniculata* F-1 hybrid. Perennial, Zones 3-9. Blooms from June till frost. Excellent for borders and cutflowers. Mix of white, pinks, reds and lilacs. Freeze seeds 10 days before sowing indoors, or direct seed in cold soil. Slow germinator, takes 3–4 weeks. Likes full sun. 3'. ~110 seeds/g. ③

5339 **A**: 0.1g, $2.50 **B**: 0.3g, $4.20 **C**: 0.9g, $7.50



QIS Formula Mix Pincushion Flower *Scabiosa atropurpurea* Annual. High-quality mix has brought us moderate success in restoring interest in the old-fashioned but underrated Pincushion Flower. These quilly beauties are perfect for cuts, each 2" bloom is a rounded mass of tiny florets on a long wiry stem. Harvest when blossoms are almost fully open. Also excellent for drying. Formula mix is nicely balanced, featuring purple, lavender, red, pink, white and almost-maroon. ~150 seeds/g. ③

5341 **A**: 0.2g, $2.50 **B**: 1g, $4.20 **C**: 4g, $8.00

Pinks: See Dianthus, 5061-5063. p. 93.

Flamenco Red Hot Poker *Kniphofia uvaria* Perennial, Zones 5-9. You won't need a casino to get into this game of poker. If you get your thrills from hot colors rather than hot hands, this Red Hot Poker is no gamble at all. Our ante is only $2.70 and there will be many winners. It will flower the first year up to four weeks earlier than other standard varieties, setting spectacular 8" spikes atop sturdy 32" stems, in a riot of yellow, orange and fiery red tubular flowers. A field of these along the road can take your breath away. Blooms July-September and makes an unusual accent in cutflower arrangements. Likes well-drained sunny locations. Space at 18–24". For overwintering, mulch to protect the crowns from moisture and heaving. 1999 AAS. ~450 seeds/g. ②

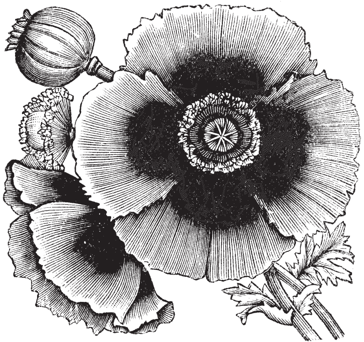
5343 **A**: 0.04g, $2.70 **B**: 0.12g, $4.50 **C**: 0.36g, $7.50

Dwarf Allegro Oriental Poppy *Papaver orientale* Perennial, Zones 2-8. Fuzzy fern-like leaves, showy buds open to dazzling scarlet blooms with contrasting black eyes. Sow in June, transplant in October for flowers the following late spring. Grows 16". Long-lived, fits well with border perennials and ornamental grasses because plants go dormant after spring flowering until the leaves re-emerge in the fall. ~5,000 seeds/g. ③

5345 **A**: 0.05g, $2.20 **B**: 0.2g, $3.90 **C**: 0.6g, $8.00

POPPY *Papaver* spp.

Annual. Sensuous luxurious flowers, about 2½–3' tall. We offer two heirloom breadseed varieties especially suitable for baking. Poppies make wondrous cutflowers: choose buds that have straightened up but not quite opened. Immediately sear the cut stem with a flame and put in water. Poppies open after several hours—an austere bouquet in the evening can become a riot of colors the next morning.
Culture: Need light to germinate. Sow outside in spring after frost or sow in fall for early blooms the following summer. Thin to 9–12". Like full sun. Will self sow. **~2,000-5,000 seeds/g.**



Elka - Organic An unusual double-purpose poppy sporting enormous seed heads up to 1½" wide and 2" high in good years, somewhat smaller in drought. The heads are unvented, so the seed is not broadcast. From Chrenovec in central Slovakia, where families used to grow both the black Breadseed poppy and white-seeded Elka, and collect 50 kilograms of each for a year's cooking. When walnuts became widely available in stores, Elka almost disappeared. Lacks the distinctive flavor of the Breadseed variety but sweeter, with a more nutlike taste, none of the bitterness, and over 50% more oil content, making perhaps the best edible oil in central Europe. Plants grow 4' with white-lavender single blossoms, like calcium-rich soil, don't transplant well. For best results thin to at least 5–6" apart. Some folks tie a group of plants together for support against wind breakage. Isolate from other poppies by at least 250' if you wish to save seed. ❧1995. ①

5350 **A**: 0.1g, $2.20 **B**: 0.3g, $4.20 **C**: 1.2g, $7.00 **D**: 6g, $14.00

Ziar Breadseed - Organic Twin to **5350** Elka bred to eliminate the vents in its large seed head so the blue seeds stay in the heads to be collected. Ornamental single pink to red petals with centers ranging from pale red through dark colors. Although the first batch of seeds had some difficulty adapting to the cold climates of Canada and Maine, Ziar has been selected over at least 20 years for better cold survival. Slovakian variety once a mainstay of the local cuisine. ❧1996. ✿ ①

5351 **A**: 0.1g, $2.20 **B**: 0.3g, $4.20 **C**: 1.2g, $7.00 **D**: 6g, $14.00

Black Peony We'd seen poppies in a lot of different colors, but never one like this fully double ruffled flower of the deepest purple, almost black. Strong tall stems. 2'. ③

5353 **A**: 0.1g, $2.00 **B**: 0.3g, $4.00 **C**: 1.2g, $6.00 **D**: 6g, $12.00

Danish Flag According to legend, Denmark's flag came from the sky to King Valdemar II in 1219. The origins of the Dannebrog or Danish Flag poppy predate 1888. Flag is named for the white spots at the base of the petals that form a cross in the center of the brilliant scarlet flowers somewhat mimicking the Danish flag. The lush single blooms, more than 4" across with fringed petals, sit atop 27" stems with blue-green foliage. The attractive large seedheads that follow the showy blooms are ideal for drying. ③

5359 **A**: 0.1g, $2.00 **B**: 0.3g, $4.00 **C**: 1.2g, $6.00 **D**: 6g, $12.00

Drama Queen - Organic I cringed when I first heard this name— surely another example of the hyperbole of those shameless variety-namers. Not this time. It's everything its name suggests, including having its photograph all over the internet. Petals are deeply cut with irregular pointy fringes, and shaded with deep purple and violet near the center which morphs to vivid raspberry toward the edges. Yellow-green centers with prominent creamy-yellow anthers accentuate the 4–5" flower. Either gorgeous or hideous, depending on your point of view, but undeniably dramatic. 3' tall. ①

5366 ***A***: *0.1g, $2.20* ***B***: *0.3g, $4.20* ***C***: *1.2g, $7.00* ***D***: *6g, $14.00*

Fluffy Ruffles - Organic A beautiful color selection with mostly pink on the outer two thirds of the petal edge with a slight purple blush in the middle and on the petal backs. Double, but not a full pompon; the fringes on the petal ends give it a spider-aster or cactus-dahlia look. The grower enthuses about how much he enjoys a field of these in full bloom. Reblooms after deadheading, though the blooms are smaller. 3'. ①

5371 ***A***: *0.1g, $2.20* ***B***: *0.3g, $4.20* ***C***: *1.2g, $7.00*

Ladybird Not a reference to Lady Bird Johnson, Ladybird is instead British for ladybug: the four black dots in the center of these fire engine–red blooms make a fanciful resemblance to the beloved beetle. Compact 1½" delicate single blooms atop wiry 15" stems. This cottage variety, great for edging the flower garden, dates back to 1876. Bloomed June 30 from a May 2 planting. ③

5374 ***A***: *0.1g, $2.20* ***B***: *0.3g, $4.20* ***C***: *1.2g, $7.00* ***D***: *6g, $14.00*

Large Lavender - Organic Passed along to Jeanne Griffin by a German friend, these tall poppies bloom in July with 2½–3" single flowers that have exquisitely shaded and fringed petals. Long blooming period. Large 1" seed pods can be used in dried arrangements. ①

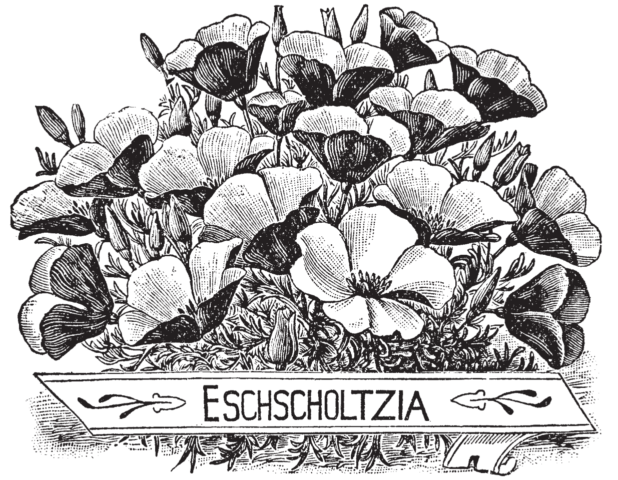
5377 ***A***: *0.1g, $2.00* ***B***: *0.3g, $4.20* ***C***: *1.2g, $7.00* ***D***: *6g, $14.00*

Scarlet Peony - Organic Large 5" bright scarlet blooms make a stunning show in the garden, especially en masse. Fully double blossoms tightly packed with silky deeply fringed petals attract everyone's attention. Very floriferous from mid-August till frost. 2–3' tall. ①

5378 ***A***: *0.1g, $2.20* ***B***: *0.3g, $4.20* ***C***: *1.2g, $7.00* ***D***: *6g, $14.00*

Shirley Double Choice Mix Also known as Corn Poppy, was called Ghost or Fairy Poppy early in the century. Elegant semi-double blooms all summer in shades of pink, rose, salmon, scarlet and white. The name Shirley refers to the town in Surry, England, where the Rev. Henry Wilkes originally raised the variety. It was relatively new in 1890 when Hallock's Famous Long Island Seeds said it was "conceded by all to be still the finest Novelty that we can give you this spring. The flowers are like fairy work…so silky and tissue-like…Bending and trembling with life-like beauty, the surface is a perfect shimmer of light and color." 2½' tall. ②

5379 ***A***: *0.7g, $2.00* ***B***: *7g, $3.80* ***C***: *28g, $7.00*



CALIFORNIA POPPY *Eschscholzia californica*

Annual. The state flower of California is excellent for borders, rock gardens, bedding. Likes full sun. Do not transplant. Direct seed in May after soil has begun warming. Make succession plantings for blooms all summer.

Jelly Beans These Jelly Beans are vibrant in their bright irresistible colors: bubblegum pink, white, orange, raspberry red, pale orange—some striped, some doubled—against feathery silver-blue foliage. Their nectar attracts bees and hover flies. From an April 11 start, Donna Dyrek's first blooms were on Bastille Day. Still bloomed after a 27° mid-October frost. 8–12" tall. ~700 seeds/g. ✿ ⑤

5381 ***A***: *0.1g, $2.60* ***B***: *0.4g, $5.20* ***C***: *2g, $13.00* ***D***: *8g, $30.00*

Dara Queen Anne's Lace - Organic *Daucus carota* (70 days) New crop's germination was less than regal. *Not available in 2020.*

RUDBECKIA spp.

Named for Olaf Rudbeck (1660-1740), professor of botany at Uppsala in Sweden and a teacher of Linnaeus. Improved versions of these rugged North American native black-eyed Susans outstrip their wild counterparts in size and color.

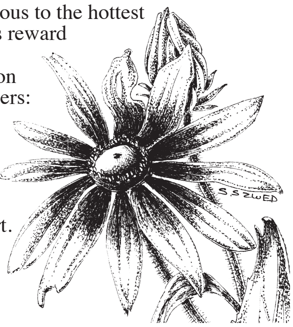
Culture: Drought-tolerant. Start indoors at 70° and do not cover the seed. Germinates in 14–21 days at 70°. Transplant after danger of frost at 15–18" apart. Likes full sun, good drainage.

Goldsturm *R. fulgida* Perennial, Zones 3-10. Domesticated cousin of the beloved black-eyed Susan, Goldsturm offers a profusion of shining golden-yellow flowers with dark central cones in August and September. Transplants well and has much larger flowers—up to 5" across—than the common wildflower. The 2' plants have long strong stems ideal for cutting and flowers last long in the vase. Start indoors 8–10 weeks before last frost. ~1,000 seeds/g. ✿ ⑤

5393 ***A***: *0.1g, $2.80* ***B***: *0.4g, $5.00* ***C***: *1.2g, $9.00*

Gloriosa Daisy *R. hirta* Annual. Impervious to the hottest sun and the poorest soils, these workhorses reward even the novice with nonstop flowers from late July until fall frosts. Flowers up to 6" on 2–3' stems have the hues of mixed sunflowers: yellow, gold, orange and reddish brown, surrounding chocolate-brown centers. They enhance the border and can be brought inside as cuts. Transplant or start seeds directly outdoors as soon as the ground can be worked. Space about 1' apart. ~1,800 seeds/g. ✿ ③

5395 ***A***: *2g, $2.40* ***B***: *6g, $4.50* ***C***: *24g, $9.00* ***D***: *72g, $21.00*



Goldilocks *R. h.* (86 days) Annual. Brighten bouquets and beds with these 4" golden-orange blooms with deep-set brown eyes. Long strong stems set on 24–30" plants make this an outstanding cutflower. Enough are fully double to give the effect of a patch of chrysanthemums. ~1,800 seeds/g. ✿ ③

5397 ***A***: *0.1g, $2.40* ***B***: *0.3g, $4.50* ***C***: *1.2g, $9.00*

Prairie Sun *R. h.* (88 days) Annual. Sixteen pointy golden petals with light yellow tips encircle a subtle green center. Flowers are very large and distinctive. Branching 24–30" plants have long stems, ideal for cutflowers. Prairie Sun won both an AAS and a Fleuroselect medal in 2004. Color-coated seed for improved visibility. ~1,200 seeds/g. ✿ ②

5399 ***A***: *0.02g, $2.70* ***B***: *0.1g, $7.00*

SALVIA spp.

From the Latin salvere, 'to heal.' Wide-ranging genus with more than 900 species throughout the world. In the Northeast they range from tiny lawn weeds to showy ornamentals to culinary sage. Members of the mint family, most have square stems and blue or lavender flowers with prominent lips.

Culture: Like full sun and dry conditions, require good drainage. In our climate, all should be started indoors.

See also sage **4664**, pg 84.

Blue Bedder *S. farinacea* Perennial, Zones 8-10, grown as an annual. True blue flower spikes are abundant for weeks on bushy 3' plants. Grey-green foliage. Light aids germination so do not cover seed. Start indoors in warm location 4–6 weeks before last frost, keep fairly dry for best foliage color, and transplant outdoors after danger of frost. ~900 seeds/g. ✿ ③

5406 ***A***: *0.2g, $2.00* ***B***: *1g, $4.20* ***C***: *4g, $8.80*

Gentian Sage *S. patens* Perennial in Zone 8-10, grown as an annual. Magnificent blossoms clear and bright, a shade lighter than cobalt blue. Each flower on the monkshood-like spike has a top petal "hood" that lunges across the pendent lower petals. Flower spikes 12–15" long, good for cutting. Start indoors 12–14 weeks before setting out. 2½' plants. ~130 seeds/g. ✿ ③

5411 ***A***: *0.1g, $2.40* ***B***: *0.3g, $4.40* ***C***: *1.2g, $8.00*

Seascape *S. f.* F-1 hybrid. Perennial, Zones 8-10, grown as annual. Even from way across the garden, this stunning mix of blues and silver grabs your attention, be the day foggy and overcast or bright and sunny, whether you are near the coast or not. Early flowering blossoms on compact branching 13" plants excel whether clumped by themselves or mixed with others. Best in full sun, tolerant of poor soil and some drought. Gazing at them in Donna's garden, well inland, I imagined I was sailing on Penobscot Bay admiring the alternating waves of color. Start seeds indoors 10–12 weeks before last frost for best bloom. ~1,050 seeds/g. ✿ ④

5417 ***A***: *0.1g, $2.60* ***B***: *0.3g, $4.50* ***C***: *1.2g, $11.00* ***D***: *6g, $36.00*

Tricolor Salvia *S. viridis* Annual. Also known as Painted Sage. This prolific little beauty is splendid as a dried flower or a filler in fresh arrangements. Although its leaves are entirely green, its name comes from its white and blue flowers set off by large pink-to-purple bracts. Easily air-dried, it will remain very colorful, and flowers until frost if old blooms are removed. 18" stalks. Start indoors 4–6 weeks before last frost. Needs well-drained soil. ~350 seeds/g. ✿ ③

5419 ***A***: *1g, $2.30* ***B***: *4g, $4.20* ***C***: *12g, $7.80*

Northern Sea Oats - Organic *Chasmanthium latifolium. Not available in 2020.*

Rocket Mix Snapdragon *Antirrhinum majus* (120 days) Perennial in Zone 7-10, grown as an annual, and occasionally overwinters even in central Maine. F-1 hybrid always very popular with commercial growers. Its long stems and vibrant colors—pink, red, yellow, orange, white and orchid—on 2–3' plants make Rocket the standard snapdragon for cutting. For local production of cuts, harvest when more than half the flowers are open. Will last 5–8 days. Withstands light fall frosts. Sow indoors at 65–75°. Do not cover the seeds. Grow on at 60°; warmer temperatures cause leggy transplants. Set out after danger of frost, spacing at 9–12". ~5,000 seeds/g. ⑤

5431 ***A**: 0.025g, $3.40* ***B**: 0.125g, $7.00* ***C**: 0.5g, $24.00*

SORGHUM *S. bicolor*

Annual. Originally from Africa, sorghum is cultured in the South for the sweet syrup of its stalks. In the floral trade it is used as a focal point for large arrangements.

Red Broom Corn (105 days) Not a true corn, broom corn looks and grows like corn but develops no ears, instead producing a tall spray of seed heads at the top of the plant in lieu of a tassel. These 2–3' sprays are laden with shiny red 1/8" seeds that birds love. Incorporate seeds into edible bird-feeder wreaths or leave sprays intact to add variety to traditional fall decorations. To make natural straw brooms, comb seeds out of the dry stalks and tie the seedless heads together. Stalks, generally 7–9', will grow up to 10' in an optimal season. ~48 seeds/g. ①

5437 ***A**: 4g, $2.20* ***B**: 12g, $4.00* ***C**: 36g, $6.30*
***D**: 180g, $17.00*

STATICE *Limonium sinuatum*

Perennial in Zone 8-9, grown as an annual. Faithful standby in everlasting bouquets; also good in fresh arrangements. Reaches 2–2½' on stiff winged bright green stems. Flowers may be gathered for drying many times throughout summer.
Culture: Seed is rubbed for easier germination, which takes 5–14 days at 70°. Some light should reach the seed. Vernalize seedlings at 50–55° until they reach the 5-leaf stage, then increase temperatures to 60–70°. Grow in full sun. Tolerant of dry conditions. **~300 seeds/g.**

QIS Purple Bright violet. ⑤

5449 ***A**: 0.2g, $2.40* ***B**: 1g, $5.50*

QIS White Like tutus in the ballet, this double white statice dances circles around all the others—and we've looked at a lot of the others. 2½' stems bear clean white full flowers with no yellowing or browning. A classic. ⑤

5453 ***A**: 0.2g, $2.40* ***B**: 1g, $5.50* ***C**: 4g, $9.00*

Mixed Colors (115 days) Mix includes lavender, rose, purple, white. ②

5464 ***A**: 0.4g, $2.10* ***B**: 2g, $4.00* ***C**: 6g, $7.00*
***D**: 30g, $18.00*

STOCK *Matthiola incana*

Annual. Old-fashioned bedding plant formerly known as Gilliflower, with multiple spikes of usually double flower clusters. Genus is named for Pierandrea Mattioli, a 16th-century Italian botanist, while incana means 'hoary' or 'light grey,' referring to its soft grey leaves. Good in beds, borders and containers.
Culture: Tolerates frost to around 26°. For earlier blooms, sow indoors at 60–65° 6 to 8 weeks before setting out after danger of frost. Likes moderately fertile moist well-drained soil, full sun. Stocks are in the Brassica family; for good rotation, don't plant them where you recently had brassicas or follow them with members of that family. **~550 seeds/g.**

Vintage Mix Fragrant mix of pink, lavender, red, rose, peach, yellow, copper and white bred for larger flowers and early bloom. About half will have fully double blooms. Sturdy well-branched 15–20" plants. ⑤

5475 ***A**: 0.1g, $2.90* ***B**: 0.5g, $7.50*
***C**: 2g, $15.00*

STRAWFLOWER
Xerochrysum bracteatum

Annual. Formerly *Helichrysum*. The freeblooming strawflower is good for border color and excellent for drying. Monstrosum varieties grow 30–40" tall, have 2–2½" fully double flowers.
Culture: Grow in full sun. Gather blossoms before fully opened. Likes warm weather but will bloom into fall. Germinate at 70–75°; grow on at 65–70° days and 60° nights. Do not overwater. Transplant in 6 weeks at 12" spacing. **~1,300 seeds/g.**

Monstrosum Fire Ball Bright red. ③

5483 ***A**: 0.2g, $2.00*
***B**: 1g, $4.20*
***C**: 5g, $7.00*

Monstrosum Mix Hot pink, light pink, white, gold and deep rose. ②

5488 ***A**: 0.33g, $2.00*
***B**: 7g, $4.00*
***C**: 28g, $7.00*

SUNFLOWER *Helianthus annuus*

Annual. Sunflower remains have been found in the Tabasco region of Mexico dating back more than 6,000 years. Prized for their seeds by humans and birds, and for cutflowers by market growers, sunflowers also add a lighthearted touch to gardens.
Culture: Easy to grow. Start indoors 3–4 weeks before last frost at temperatures of 65–75° or direct sow after frost, 3 to a pocket. Thin to best plant, 1' or more apart. Rich friable soil yields tallest plants; drought stunts growth. Will readily self-sow; for some fun, leave a few volunteers in strategic locations.

Varieties open-pollinated unless otherwise indicated. All varieties have pollen unless noted otherwise.

See also **5906** Hopi Dye sunflower, p. 103.

Sunflower Sampler Our third-best seller among flowers. We mix seed for a half dozen or so varieties into one package so you can create a lovely display. No dwarfs or mammoths. Tim Brown of Rutledge, TN, says, "I love the mixed packets. I've tried to calculate the joy/cost ratio of the… Sunflower Sampler. Always a knockout—and how do I add in the value of the joy they brought to my neighbor who had never seen darker sunflowers? I love the range of seed sizes in the sunflower packets." 25-30 seeds/g. ✿

5599 ***A**: 1g, $2.30* ***B**: 3g, $4.20* ***C**: 9g, $9.00*
***D**: 90g, $33.00*

Autumn Beauty Mix - Organic (70-90 days) This 6–8' multibranching beauty is always a top seller. Produces a lovely mixture of earthen shades, petal colors ranging from bright yellow to bronze and purples. Most have a characteristic red ring enclosing a black center. Blossoms 4–6" across are perfect as the center of giant flower arrangements. ~30 seeds/g. ✿ ③

5500 ***A**: 1g, $2.00* ***B**: 4g, $3.40* ***C**: 28g, $8.00*
***D**: 1#, $70.00*

Fantasia F-1 hybrid. Stately 4–5' stalks bearing 4–8" perfectly round **pollen-free** flowers. The best of 16 varieties in CR's grow-out. He noted a perfect blossom that opened with the month of September and was most gorgeous on Sept. 8. It was 5" across, yellow-orange with a striking dark brown center. Fantasia is a formula blend with colors ranging from white to darkest red, with double and semi-double flowers. ~22 seeds/g. ③

5503 ***A**: 1g, $2.60* ***B**: 2g, $4.50* ***C**: 10g, $15.00*
***D**: 40g, $35.00*

Florenza Attracted many comments in past sunflower trials at Common Ground Fair. Stunning brown-centered 6" flowers in maroonish-red with yellow tips and a hint of yellow around the center. Mixes well with other sunflowers; makes the whole bouquet pop. 3½' tall. ~40 seeds/g. ✿ ②

5507 ***A**: 0.5g, $2.50* ***B**: 2g, $6.50* ***C**: 8g, $10.00*
***D**: 24g, $24.00*

Green Heart F-1 hybrid. Stole the show and stole CR's heart with its bold display in his Colrain, MA, beds. Golden-yellow blooms with their amazing 4" lime-green centers could stop traffic. These make compelling cutflowers and are **pollen-free**. Tall straight single stems grow up to 5'. ~15 seeds/g. ②

5509 ***A**: 1.2g, $4.00* ***B**: 2.4g, $7.00* ***C**: 12g, $20.00*
***D**: 36g, $50.00*

The Joker (60 days) F-1 hybrid. A bicolored **pollen-free** beauty with two rings of petals. An interior short yellow fringe resembling eyelashes radiates from the brown disk and accentuates the big orangy-maroon yellow-tipped outer petals. One of the best sunflowers for cutting. Mottled red stalks grow 5–7' with multiple branching. ~22 seeds/g. ③

5512 ***A**: 1g, $2.70* ***B**: 2g, $4.50* ***C**: 6g, $11.00*
***D**: 1oz, $22.00*

Lemon Queen - Organic Luxuriant 8" blooms with lemon-yellow petals surrounding striking solid brown centers. Although it can grow up to 10' tall in rich soil, its powerful stems do not lodge. Likes high fertility; makes shorter stems and narrower petals in average soil. Not early; bloomed for Donna Dyrek in late August. ~20 seeds/g. ✿ ①

5515 ***A**: 1g, $2.00* ***B**: 5g, $4.00* ***C**: 20g, $7.00*
***D**: 1#, $64.00*

Mammoth Grey Stripe (120 days) A traditional variety of giant (usually 6–12') single-stem sunflower with large seed heads. The one to grow if you want to eat the seeds or plant a maze. Beloved by both birds and kids. ~7 seeds/g. ✿ ②

5518 ***A**: 14g, $2.50* ***B**: 56g, $4.50* ***C**: 224g, $12.00*
***D**: 896g, $33.00*

Moulin Rouge (65 days) F-1 hybrid. A favorite among commercial growers for its color, though not all stems are long enough for cutting. 5–6' multi-branching stems topped by gorgeous 5–7" dark red **pollen-free** blossoms, somewhat short-lived. Burgundy petals become almost black close to the disc. The Moulin Rouge was a nightclub in Paris where Toulouse-Lautrec created much of his work. This sunflower would make a fine subject for such an exuberant artist. ~15 seeds/g. ③

5521 ***A**: 1g, $2.30* ***B**: 2g, $4.00* ***C**: 10g, $7.50*
***D**: 40g, $25.00*

Ruby Eclipse (55 days) F-1 hybrid. Ruby-red petals with lemon tips are a vivid addition to any collection of sunflowers. The gorgeous **pollen-free** 4–5" flowers with dark centers sometimes shade into pink. 6' branching plants. ~20 seeds/g. ③

5533 ***A**: 1g, $2.60* ***B**: 2g, $4.20* ***C**: 10g, $12.00*
***D**: 40g, $32.00*

Schnittgold Handsome single-headed 5' sunflower. The center's double center ring surrounded by deep yellow petals makes a striking display. The inner pollen ring is black and flat, surrounded by an auxiliary ring of brown. *Schnitt* means 'cut' in German; with 8–10" blooms, this variety makes a superb cutflower. Customer Karen Pratt points out that Schnittgolds, when mature, get a hollow in the center—perfect for making sunflower bird wreaths. ~20 seeds/g. ✿ ②

5536 ***A**: 1g, $2.20* ***B**: 3g, $3.90* ***C**: 12g, $8.00*
***D**: 60g, $24.00*

Selma Suns Mix - Organic Trialer Donna Dyrek rates these her favorite sunflowers for their fragrance, beautiful diversity and plethora of polyheading 6" blooms. Selma's heads have small dark centers, pointed petals, and display various hues and shades including yellows, golds, maroons and reds. Dyrek reports that Selma "flowers forever if the squirrels don't rip off the heads." 6–7' tall. ~50 seeds/g. ✿ ①

5539 ***A**: 1g, $2.30* ***B**: 3g, $4.20* ***C**: 12g, $8.00*
***D**: 60g, $22.00*

Soraya - Organic (80 days) The first sunflower ever to win an AAS (2000), Soraya impressed the judges with its luminescent deep orange petals, contrasting dark mahogany center disks, and sturdy branching habit. The latter accounts for its astonishing productivity, up to 25 4–6" blooms per plant, borne on stout 20" stems, perfect for cutting. **Almost pollenless**. 6' plant spreads 2–3'. ~50 seeds/g. ①

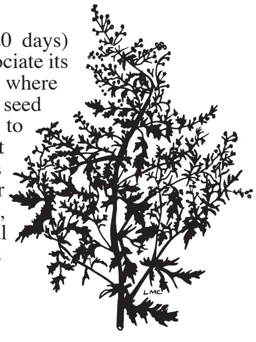
5542 ***A**: 0.5g, $2.50* ***B**: 4g, $7.80* ***C**: 16g, $20.00*
***D**: 64g, $60.00*

Summer Sensation (65 days) Vibrant 8" flowers, yellow surrounding a dark disk, on 5' plants. Can be grown as a single stem or pinched to branch out. Seedheads can be crafted into decorative natural birdfeeders. ~6 seeds/g. ✿ ③

5545 ***A**: 2g, $2.20* ***B**: 6g, $4.20* ***C**: 30g, $12.00*
***D**: 1#, $118.00*

Vanilla Ice *H. debilis* The closest we have seen to a white-petaled sunflower. Though their true color is more cream or pale yellow, the petals make a great contrast to the rich dark disk in the center. Superior to the better-known Italian White in our trial. Wini Noyes advises to "start really, really early and don't transplant until they are very strong." Polyheaded with 5' stalks, 3–4" blossoms. ~140 seeds/g. ✿ ③

5555 ***A**: 1g, $2.20* ***B**: 3g, $4.20* ***C**: 12g, $7.00*
***D**: 60g, $22.00*



Sweet Annie - Organic *Artemisia annua* (120 days) Annual. Also known as Sweet Wormwood. We associate its pungent fragrance with the Common Ground Fair where so many vendors offer it and where we sell more seed than for any other item. John Pino has brought it to the Fair Farmers' Market by the trailerload. Sweet Annie grows up to 5', with light green leaves valued for everlasting wreaths that emit their distinctive redolence all winter. Used in China, where it's known as *qing hao*, as an antimalarial and antimicrobial. Reseeds itself vigorously. Seed must be frozen for 2 days, then germinated in light. ~250 seeds/g. ①

5603 ***A**: 0.2g, $2.30*

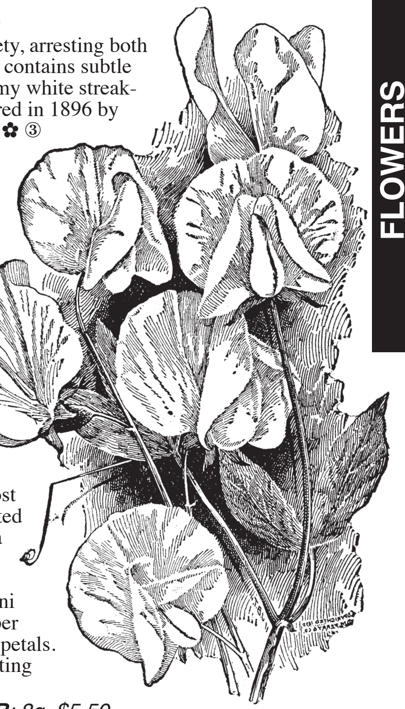
Perennial Sweet Pea *Lathyrus latifolius* Zones 3-10. The traditional English cottage sweet pea, grown by Jefferson in 1771, thrives in cool climates, loves sun and climbs 6'. Useful as a screen. Comes in shades of rose, white and pink in big clusters. Good cutflowers. Soak seeds up to 24 hours before sowing outdoors in early spring. Can take 3–4 weeks to germinate. ~20 seeds/g. ③

5611 ***A**: 1g, $2.00* ***B**: 3g, $3.80* ***C**: 12g, $6.60*

SWEET PEA *Lathyrus odoratus*

Annual. Native to Sicily, first domesticated around 1699 when amateur botanist and monk Father Francis Cupani shipped seed for the variety that bears his name to a hothouse grower in England. In the late 1800s extensive breeding work, especially by Henry Eckford, expanded the range of available colors. Around 1900 Silas Cole, gardener to Earl and Countess Spencer, found a sport with much larger ruffled flowers but less scent than Eckford's varieties. It created a sensation when it was exhibited in 1901. From this variation derive all modern strains including Knee-High and Mammoth. As interest in fragrance revived, Bodger Seeds Ltd. obtained as many early varieties as possible and created Old Spice Mix in the 1970s.

Culture: Soak seeds for 12–24 hours prior to sowing. For earliest blooms, sow indoors 2 months before setting out, or sow direct in spring. Need darkness for germination, which takes 10–21 days at 60°. Old catalogs recommended sowing in a 4–5" trench and filling in as the peas grew. To reduce root fungal diseases, always select well-drained locations and rotate them from year to year. Likes full sun and moist rich soil, but many perform poorly in heat, so mulching is recommended. If you are growing for cuts, avoid windy locations, as exposure will make plants stockier and stems shorter. Requires support. We use **8859** Trellis Netting (pg 141). Harvest flowers frequently to keep blooms coming. Last only 3 days in the vase, but perfume the air incomparably. ~10 seeds/g.



Perennial sweet pea is bottom left.

America An antique striated variety, arresting both to eyes and nostrils. Each blossom contains subtle variations of bright reds with creamy white streakings. Heavily perfumed. First offered in 1896 by Morse-Vaughan. Vines grow to 3'. ✿ ③

5614 ***A**: 2g, $2.30*
***B**: 8g, $6.00*
***C**: 24g, $11.00*
***D**: 120g, $36.00*

Black Knight One of 115 varieties Eckford exhibited at the Crystal Palace in 1900, bred in 1898. Highly scented deep maroon flowers tolerant of heat. 5–6' vines. ✿ ③

5620 ***A**: 2g, $2.30*
***B**: 8g, $6.00*
***C**: 24g, $11.00*
***D**: 120g, $40.00*

Cupani Oldest and among the most fragrant of all sweet peas. Celebrated its 300th birthday in 1998 amidst a surge of renewed interest. Named for the Sicilian monk who found these bicolors growing wild, Cupani combines deep maroon-purple upper petals with deep violet-blue lower petals. Grow Cupani for enticing intoxicating aroma. 5' vines. ✿ ③

5623 ***A**: 2g, $2.30* ***B**: 8g, $5.50*
***C**: 24g, $10.00* ***D**: 120g, $32.00*

Knee-High Mix Semi-dwarf 20" bush-type plants need no support, produce full-length stems. Mix includes chianti, pink, blue-violet and lavender. ✿ ②

5626 ***A**: 2g, $2.20* ***B**: 8g, $5.00* ***C**: 24g, $10.00*
***D**: 120g, $30.00*

Mammoth Mix (75 days) 4–6' staking variety. The best tall mix in our many gorgeous trials. Though temporarily slowed by heat waves, revives during each cool spell and never stops blooming from July to September. Long stems make ideal cutflowers. Mixture of crimson, scarlet, white, lavender, deep rose, medium blue and pink. The purples and reds are the most fragrant. Year after year the least finicky and most dependable performers in heat. ✿ ③

5629 ***A**: 2g, $2.00* ***B**: 8g, $4.00* ***C**: 24g, $7.00*
***D**: 448g, $52.00*

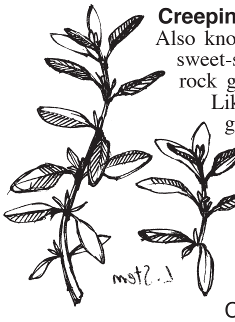
Mrs. Collier A fragrant white sweet pea! We thank Marilyn Barlow of Select Seeds in Union, CT, for bringing it to our attention. Even in those hot humid nights the heavenly blooms last and exude way more scent than the whites in the Mammoth Mix. Introduced in 1907 by Dobbie & Co. 5–6' vines. ✿ ③

5632 ***A**: 2g, $2.30* ***B**: 8g, $6.00* ***C**: 24g, $11.00*
***D**: 4oz, $36.00*

Painted Lady - Organic *Dropped for lack of interest.*

Streamers Mix (60 days) The Streamers are known in the trade as "flakes" for the boldly streaked white patterns rippling on a mix of colors—blue, lavender, pink, purple, chocolate, orange and scarlet. With its good stems, huge blossoms, abundant fragrance and surprising longevity as a cutflower, this 2002 introduction was a real coup for pre-eminent New Zealand breeder Keith Hammett. Over 5' tall. ✿ ③

5635 ***A**: 2g, $2.30* ***B**: 8g, $6.00* ***C**: 24g, $11.00*
***D**: 120g, $33.00*

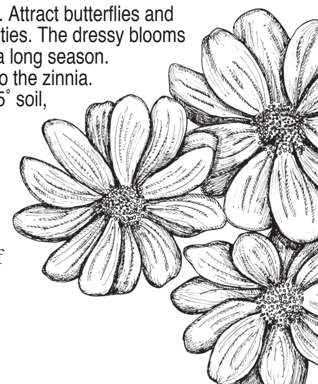


Creeping Thyme *Thymus serpyllum* Perennial, Zones 3-10. Also known as Mother-of-Thyme or Brotherwort. Creeping sweet-scented ground cover with purple flowers good in rock gardens, between stepping stones or on dry slopes. Likes good drainage, full sun and alkaline soil. Plants grow slowly from seed, may be started indoors two months before planting, or outside in early spring or fall. Sow thickly, do not cover seeds, requires light to germinate. 2". ~6,290 seeds/g. ③

5643 ***A***: *0.1g, $2.60*
B: *1g, $4.80*
C: *3g, $8.00*
D: *30g, $32.00*

Culinary Thyme: See 4687 on p. 85.

TITHONIA *T. rotundifolia*



Annual. Also known as Mexican Sunflower. Attract butterflies and bumblebees with these tall floriferous beauties. The dressy blooms often exceed 4" across and continue over a long season. **Culture:** Heat-loving plant closely related to the zinnia. Sow outdoors after danger of frost in 70–85˚ soil, or start indoors 6 weeks before last frost date. Tithonia sulks in the cold so don't bring it out too soon. ~100 seeds/g.

Goldfinger Bond with Goldfinger! 4' tall with bright orange 3–4" blooms comparable to Torch's. Upright and uniform habit, more dwarf than Torch, yet with nearly as much charm and greater versatility. ✿ ③

5647 ***A***: *0.2g, $2.20*
B: *0.6g, $4.20*
C: *1.8g, $6.60*

Torch (120 days) Stately 6' plants with velvety dark green leaves bear scarlet-orange 4–5" blooms that attract hummingbirds and monarch butterflies. My fondness for this showy flower is shared by our customers. 1951 AAS. ✿ ③

5649 ***A***: *0.2g, $2.20* ***B***: *0.6g, $4.20*
C: *7.2g, $8.00* ***D***: *28.8g, $11.00*

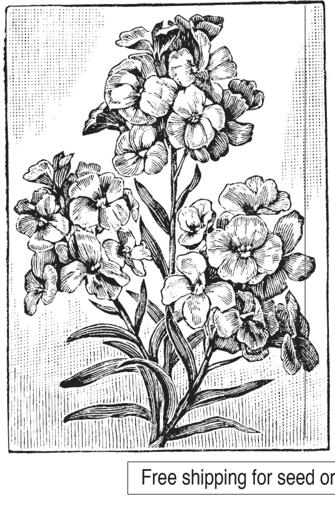
Purple Top Verbena *V. bonariensis* (90 days) Perennial in Zone 7-10, grown as an annual. Don't confuse this free-flowering Verbena with the hybrid dwarf bedding plant. Proud strong 3–4' stems almost without leaves topped with vibrant purple flowers that thrive in heat and bloom from July to October. Makes an ideal cutflower and mingles beautifully with other tall border plants. Hillary Nelson suggests combining with cosmos, lavender, purple zinnias and lemon mint. Attracts butterflies. Extremely drought-resistant. Erratic germination may be helped by 3–5 weeks' stratification prior to sowing. Start at 70–75˚, grow on at 55–62˚. Keep growing medium fairly dry. Cutflower customers love it, but its tendency to shatter annoys some growers. ~4,000 seeds/g. ✿ ③

5661 ***A***: *0.1g, $2.40* ***B***: *0.4g, $6.60* ***C***: *2g, $12.00*

Ideal Florist Mix Verbena *V. hybrida grandiflora* Annual. Multiple whorls of many 5-petaled flowers spiral centrally like little umbrellas on sturdy 12" stems. The 3" umbels come in shades of deep magenta, white, lilac, blue-violet and fuchsia, all accentuated by white throats. The multi-branching semi-sprawling habit makes this mix wonderful for beds and bouquets. ~400 seeds/g. ③

5663 ***A***: *0.2g, $2.00* ***B***: *0.6g, $4.20* ***C***: *3g, $12.00*

Siberian Wallflower *Cheiranthus allionii* Hardy biennial, blooms first year. Charming bright orange spice-scented phlox-like 4-petaled blossoms are anything but shy, glowing profusely from early summer into fall. The first week of October bumblebees were still flocking to this one, along with garden gawkers who couldn't resist a mid-fall splash of color. A random seed from a nearby meadow where the year before we broadcast **5809** Northeast Wildflower Mix drifted into the peach orchard and is thriving in the wood chip mulch. This single plant grew to a bushy 12" tall, flopped in a heavy rain and then sent up dozens of vertical shoots that blossomed profusely, creating a dense orange mass—our new favorite orchard companion. An unexpected gift that was going strong more than 100 days after arrival and a few hard autumn frosts. Sow outdoors in early spring, or start indoors and transplant out. Germination takes 7-20 days. 9-12". ✿ ② **BACK!**



5675 ***A***: *0.25g, $1.80*
B: *1g, $4.50*
C: *4g, $12.00*

ORNAMENTAL WHEAT *Triticum* spp.

See the Wheat on pg 124 to learn a bit about winter and spring wheats.

Black Eagle Spring Wheat - Organic *T. aestivum* (95 days) A stunning dual-purpose spring wheat, standing 3' tall in the field with black and white glumes and crisp 3–4" black awns that wowed Nikos the first time she saw it. Harvest early for best ornamental value as its striking color fades the longer the plants stand in the field. Later, as the kernels fill out and redden, gather the sheaves to thresh, winnow and grind. A 6-row wheat with good straw strength and average yield. Seed originated from Thumbs Heath of the Seed Savers Exchange ~20 seeds/g. ①

4322 ***A***: *7g, $2.40*
B: *28g, $6.20*
C: *112g, $12.00*

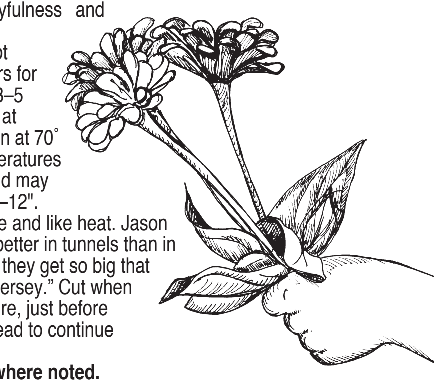
Utrecht Blue Spring Wheat - Organic *T. durum* This may be the world's most beautiful wheat. It hardly matters that Utrecht Blue is hard to thresh because it is too beautiful to eat and is used instead for wheat weaving and flower arrangements. Features four rows with blue-grey husks and long black awns. Utrecht is a spring wheat; sow it in April for harvest in September. ~20 seeds/g. ①

4324 ***A***: *7g, $2.80*
B: *28g, $7.00*
C: *112g, $14.00*

Yarrow: See 4699 (p. 85) and 4803 (p. 88).

ZINNIA *Z. elegans*

Annual. Known as Youth and Old Age in the 1800s, this showy genus was named for German botany professor Johann Gottfried Zinn (1727-1759). Easy to grow from seed and a favorite for bright color in Maine summers. Zinnia flower essence is used to bring out playfulness and lightheartedness.



Culture: Sow in a sunny spot after last frost, or start indoors for earlier blooms. Germinates 3–5 days at 80–85˚, more slowly at cooler temperatures. Grow on at 70˚ days, 60–65˚ at night. Temperatures below 60˚ delay flowering and may induce chlorosis. Space at 9–12".

They need good drainage and like heat. Jason Kafka says zinnias perform better in tunnels than in the field. With the extra heat they get so big that "they think they are in New Jersey." Cut when flowers are almost fully mature, just before pollen starts to form. Deadhead to continue production.

~110 seeds/g except where noted.

Benary's Giants (85 days) The most elegant giant dahlia-flowered zinnia. The densely petaled double flowers regularly exceed 4" across, showy yet extremely refined, borne on long stems perfect for cutting. Highlighted by the uniform petal patterns, colors are particularly bright. Holds better than most even under the stress of high heat and rainfall. Absolutely breathtaking in ideal conditions. 3–3 1/2' plants. The zinnia of choice for market growers; on a par with State Fair Mix for home gardeners. *Benary's are film-coated with an industrial food-grade non-toxic coloring that does not contain any fungicides or pesticides*. ~120 seeds/g.

Benary's Giants Lime A trendy color in this superior series. ②

5700 ***A***: *0.2g, $2.70* ***B***: *1g, $6.30* ***C***: *4g, $16.00*

Benary's Giants Scarlet ②

5702 ***A***: *0.2g, $2.70* ***B***: *1g, $6.30* ***C***: *4g, $16.00*

Benary's Giants Wine A very hot fuchsia. ②

5704 ***A***: *0.2g, $2.70* ***B***: *1g, $6.30* ***C***: *4g, $16.00*

Benary's Giants Mix From yellow, orange and white to scarlet, rose-pink, coral, deep red, lilac and purple. ②

5707 ***A***: *0.2g, $2.70* ***B***: *1g, $6.30* ***C***: *4g, $16.00*
D: *20g, $70.00*

Cactus Bright Jewel Mix (75 days) Large ruffled zinnia blossoms resemble chrysanthemums. Profuse immense blooms in scarlet, orange, pink, yellow. 3' tall. ③

5711 ***A***: *1g, $2.00* ***B***: *7g, $4.00* ***C***: *28g, $7.00*
D: *4oz, $15.00*

California Giant Mix - Organic (85 days) Developed in 1926, California Giant (3–4' tall and bushy) blooms with masses of brilliant 4–6" double flowers in red, yellow, orange, lavender, maroon, violet and white. The flower shape is more open than **5714** Gold Medal Mix. Easy to grow and fantastic for cutflowers—the more you cut the more they bloom! ③

5713 ***A***: *1g, $2.50* ***B***: *7g, $7.00*

Gold Medal Mix A formula blend of cherry, orange, pink, purple, scarlet, white and yellow dahlia-flowered blossoms 4–5" across excellent for cutting. Flowers are flat-petaled, semi-double on 3½' plants. Bred by Bodger. ③

5714 ***A**: 1g, $2.00* ***B**: 7g, $3.80* ***C**: 28g, $7.00*
***D**: 4oz, $16.00*

Inca Waist-high stems bear striking 3–4" single blaze-orange blooms with showy little yellow doodads (disk florets) in the center. Long stems for cutting. Flowered fluorescently from July to October at Donna Dyrek's trial. ~120 seeds/g. ②

5717 ***A**: 0.5g, $2.50* ***B**: 1.5g, $4.00* ***C**: 9g, $10.00*

Jim Baggett's Choice Mix - Organic (85-90 days) While we have extolled Jim Baggett's vegetable breeding efforts in the past and carry several of his peas and a tomato, we had not considered his backyard avocation of breeding zinnias. Last year we rectified that oversight. Baggett's Choice: both chosen by the OSU breeder—and a choice mix. Brilliantly hued large flowers on long stems come in bright oranges, yellows, red, magenta and pink with many petal forms, some cactus types and a few that look like they're related to Zowie. Jim's yard must have looked stunning. Now our yards can look likewise. ①

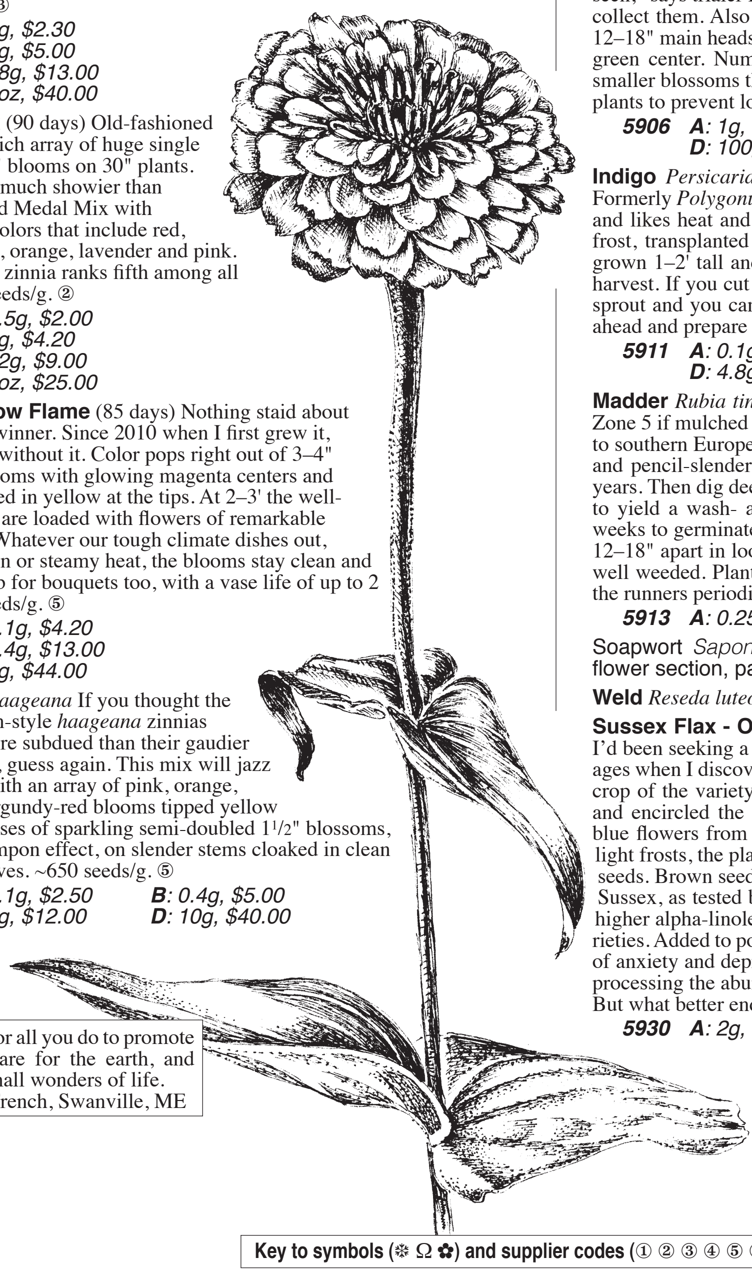
5720 ***A**: 25 seeds, $3.50* ***B**: 100 seeds, $10.00*
***C**: 400 seeds, $27.00*

Pumila Mix (Cut & Come Again) Small 2' plants with flowers 2½–3" across. Wide range of colors includes orange, yellow, white, pink, lavender and scarlet. ~175 seeds/g. ③

5725 ***A**: 1g, $2.00* ***B**: 7g, $4.00* ***C**: 28g, $8.00*
***D**: 4oz, $16.00*

Scarlet Flame Even Gene, who doesn't like gaudy zinnias, was attracted to Scarlet Flame's elegant bright scarlet blooms. 4–5" blooms on 3' plants. Predates 1934. ③

5728 ***A**: 1g, $2.30*
***B**: 7g, $5.00*
***C**: 28g, $13.00*
***D**: 4oz, $40.00*



State Fair Mix (90 days) Old-fashioned variety bears a rich array of huge single and double 4–5" blooms on 30" plants. The blooms are much showier than those in the Gold Medal Mix with fully saturated colors that include red, magenta, purple, orange, lavender and pink. Our best-selling zinnia ranks fifth among all flowers. ~100 seeds/g. ②

5731 ***A**: 0.5g, $2.00*
***B**: 2g, $4.20*
***C**: 12g, $9.00*
***D**: 4oz, $25.00*

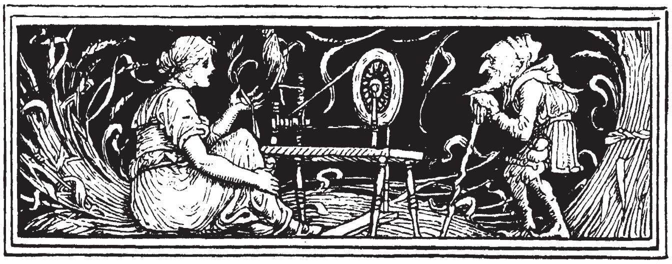
Zowie!™ Yellow Flame (85 days) Nothing staid about this 2006 AAS winner. Since 2010 when I first grew it, I have not been without it. Color pops right out of 3–4" semi-double blooms with glowing magenta centers and rose petals dipped in yellow at the tips. At 2–3' the well-branched plants are loaded with flowers of remarkable staying power. Whatever our tough climate dishes out, whether cold rain or steamy heat, the blooms stay clean and last long. Superb for bouquets too, with a vase life of up to 2 weeks. ~125 seeds/g. ⑤

5738 ***A**: 0.1g, $4.20*
***B**: 0.4g, $13.00*
***C**: 2g, $44.00*

Jazzy Mix *Z. haageana* If you thought the smaller Mexican-style *haageana* zinnias were always more subdued than their gaudier *elegans* cousins, guess again. This mix will jazz up your patch with an array of pink, orange, carmine and burgundy-red blooms tipped yellow to carmine. Masses of sparkling semi-doubled 1½" blossoms, some with a pompon effect, on slender stems cloaked in clean bright green leaves. ~650 seeds/g. ⑤

5748 ***A**: 0.1g, $2.50* ***B**: 0.4g, $5.00*
***C**: 2g, $12.00* ***D**: 10g, $40.00*

> Thank you for all you do to promote resilience, care for the earth, and joy in the small wonders of life.
> – Anna French, Swanville, ME



Dye & Fiber Plants

Susanne Grosjean, of the Wednesday Spinners group in Downeast Maine, says, "You need only three dye plants: indigo for blue, madder for red and weld for yellow. Three primary colors, all excellent color-fast dye plants."

Dyer's Coreopsis Mix *Coreopsis tinctoria* Annual. A beautiful native ornamental that provides a full palette of color from yellows and greens to rusts and browns—and even black, depending on the combination of plant parts and mordants. Large cosmos-like flowers in combinations of yellow, mahogany and red atop 2½' erect stems flourish in full sun and make excellent cuts. Low-maintenance and rugged. Good for less cultivated areas such as open spaces, roadsides and borders, competes well with grasses and reseeds easily. Tolerates drought. Direct seed outdoors after frost. ~2,200 seeds/g. ②

5904 ***A**: 0.3g, $2.00* ***B**: 0.9g, $3.80* ***C**: 4.5g, $6.50*

Hopi Black Dye Sunflower - Organic (90-100 days) *Helianthus annuus* Annual. A rare indigenous heirloom that the Hopis used as a natural dye source for coloring baskets purplish charcoal. "Blackest little seeds I've ever seen," says trialer Donna Dyrek. They will stain your hands purple when you collect them. Also edible and extremely easy to hull. 8' stalks with massive 12–18" main heads feature golden-yellow single petals around a dark purple-green center. Numerous side branches set all the way to the ground with smaller blossoms that make great cuts. Mound the soil around the base of the plants to prevent lodging. **Indigenous Royalties ✿** ①

5906 ***A**: 1g, $2.70* ***B**: 4g, $5.00* ***C**: 20g, $10.00*
***D**: 100g, $42.00*

Indigo *Persicaria tinctoria* Japanese Indigo preferred by dyers in Maine. Formerly *Polygonum tinctorium*. A tender annual, indigo thrives in fertile soil and likes heat and humidity. Best started indoors 6–8 weeks before the last frost, transplanted out on 1' centers and kept moist. When the plants have grown 1–2' tall and bruised leaves turn navy blue, they are ready for a first harvest. If you cut the stems several nodes up from the ground, they will re-sprout and you can harvest the re-growth, perhaps several times more. Plan ahead and prepare the dye bath the same day as the harvest. ~250 seeds/g. ①

5911 ***A**: 0.1g, $3.30* ***B**: 0.3g, $8.50* ***C**: 1.2g, $22.00*
***D**: 4.8g, $70.00*

Madder *Rubia tinctorum* Known as Common Dyer's Madder. Perennial to Zone 5 if mulched heavily. An ancient and excellent source of red dye, native to southern Europe and Asia, the 4' plants have square stems, whorled leaves and pencil-slender roots. Roots go down 2'. Do not harvest them for three years. Then dig deep to get the tap roots, not the runner roots, and grind them to yield a wash- and light-fast red dye par excellence. Seed can take two weeks to germinate. Start inside in April in 70+° temperatures and transplant 12–18" apart in loose soil after danger of frost. Mulch deeply and keep beds well weeded. Plants send out runners that could become invasive so dig out the runners periodically or keep the area around the beds mowed. ~45s/g. ①

5913 ***A**: 0.25g, $4.00* ***B**: 1g, $12.00* ***C**: 4g, $38.00*

Soapwort *Saponaria officinalis:* Bouncing Bet bounced back to the flower section, page 90.

Weld *Reseda luteola* We need a supplier. *Not available in 2020.*

Sussex Flax - Organic (110 days) *Linum usitatissimum* Open-pollinated. I'd been seeking a seed source for this "most useful" (*usitatissimum*) flax for ages when I discovered that our very own Roberta Bailey was growing a seed crop of the variety I sought. Roberta densely broadcast seeds in late spring and encircled the patch by a simple rope fence to keep the 3' plants with blue flowers from falling in the winds and rain. Come October, after a few light frosts, the plants were easy to pull and most of them had ripened brown seeds. Brown seeds are richer with more intense flavor than golden flax, and Sussex, as tested by the Irish Seed Savers Association, was found to have a higher alpha-linolenic acid content (an omega 3 fatty acid) than 17 other varieties. Added to porridge or to *flax*jacks, the many benefits include tempering of anxiety and depression and improvement of eye health. From what I hear, processing the abundant flax straw into fiber for spinning will not be so easy. But what better endeavor to pursue during a long dark winter? ① **NEW!**

5930 ***A**: 2g, $3.50* ***B**: 14g, $15.00* ***C**: 28g, $25.00*

See also:
Lady's Mantle, p. 82
Hopi Red Dye Amaranth, p. 88
Coreopsis Early Sunrise, p. 91

Key to symbols (❄ Ω ✿) and supplier codes (① ② ③ ④ ⑤ ⑥) on page 4.

CERTIFIED ORGANIC VARIETIES

Organics in the Catalog

We list all available organic selections in this section.

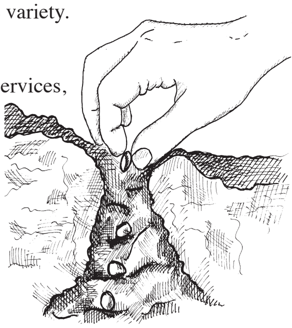
All variety descriptions (organic and otherwise), sizes and prices are in the main body of the catalog beginning on page 5. Sometimes we offer both conventional and certified-organic seed of the same variety.

Certified-Organic Seed

Fedco Seeds is certified by MOFGA Certification Services, Maine's USDA-approved certifier. MCS conducts an annual inspection and audit of Fedco to ascertain that we remain in compliance with the national standards.

If you buy organic seed because you are a certified grower, save your invoice and your packet labels so you can keep track of lot numbers to maintain your own audit trail.

We continue to expand our range of suppliers and our offerings of certified-organic varieties.



Sustainably Grown Seed

All seed in our catalog offered as **Organic** comes from certified-organic farms. Even farms grossing under $5,000 that would otherwise be exempt from certification must get certified for us, as a processor, to label their product "certified organic."

Believing it essential to the democracy and self-reliance of our agricultural community and to our integrity as a seed supplier, we have painstakingly built our network of small seed growers over the past 30 years. Most of our growers use farm and seed revenues to supplement income from other jobs. Many gross less than $5,000 farming.

Some growers who practice sustainable farming methods conscientiously eschew certification for economical or ideological reasons. Thus, we are using the ecological label **ECO** after the variety name to describe uncertified seeds grown without pesticides, herbicides or chemical fertilizers in gardens and on farms that maintain an active soil-building program. Often this seed is as sustainably grown as the certified-organic seed. We hope you will continue to support both **Organic** and **ECO** growers with your purchases.

We use the label **BD** for those varieties certified biodynamically grown. Some varieties have both biodynamic and organic certification and so will be labeled **Organic/BD**.

All **open-pollinated** unless otherwise noted. See the main body of the catalog, beginning on page 5, for descriptions, available sizes and prices, cultural information and sundry facts. For organic farm seed see pages 118-124.

STORE RACKS

5953 and **5954** See page 5.

ARTICHOKE pg 6

3608 Imperial Star

BEANS pp 6–10

Bush Beans

205 Provider
231 Jade
245 Roma II
225 Royal Burgundy
265 Gold Rush
277 Dragon Langerie
247 Montpellier
249 Maxibel

Dry & Shell Beans

333 Limelight
334 Black Coco
331 Silver Cloud Cannellini
328 Vermont Cranberry
344 Jacob's Cattle
353 Kenearly
377 Red Kidney
385 Black Turtle

Pole Beans

278 Seychelles
295 Blue Coco
371 True Red Cranberry

Fava Bean

299 Windsor

Soybeans

494 Chiba Green
488 Tankuro
491 Shirofumi
492 Sayamusume

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2109 Early Wonder Tall Top
2121 Red Ace F-1 hybrid
2137 Chioggia Guardsmark
2187 Bull's Blood
2128 3 Root Grex
2129 Golden Grex
2144 Golden Detroit
2149 Touchstone Gold

BROCCOLI pp 12–13

3306 Solstice F-1 hybrid
3308 Covina
3325 Umpqua
3316 Purple Peacock GP

CABBAGE pg 15

3399 January King

CARROTS pp 17–18

2090-2091 Napoli F-1 hybrid
2092-2093 Yaya F-1 hybrid
2051 Nantes Fancy
2060 Rumba
2062 Naval
2076 Danvers
2079 Scarlet Keeper

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3624 Ventura Celery
3630 Redventure Celery
3634 Tango Celery
3646 Brilliant Celeriac
3648 Monarch Celeriac

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544 Top Hat Yellow Sweet
636 Luther Hill White Sweet
652 Tuxana White Sweet
675 Dakota Black Popcorn
677 PA Dutch Butter Popcorn
680 Painted Mountain
682 Abenaki Calais Flint
688 Floriani Red Flint
692 Hopi Blue Flint

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1239 Little Leaf H-19 Pickler
1340 Marketmore 86 Slicer
1313 Marketmore 76 Slicer
1335 Longfellow Slicer
1380 Socrates F-1 hybrid
1394 Suhyo Long
1396 Shintokiwa
1311 Boothby's Blonde
1318 Silver Slicer
1375 Richmond Green Apple

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3684 Diamond
3679 Annina
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4553 Perfection Fennel
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4300 Opopeo Amaranth

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3021 Ice-Bred Arugula
3023 Arugula
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3039 Silverado Chard
3041 Red Rhubarb Chard
3063 Très Fine Maraîchère Olesh Endive
3075 Chickendiva Endive
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3148 Purple Orach
3150 Aurora Orach
3182 Golden Purslane
3059 Avona Watercress

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3257 Chinese Thick-Stem
3222 Tokyo Bekana
3217 Garnet Giant Mustard
3219 Yukina Savoy Mustard
3226 Early Mizuna
3227 Ruby Streaks
3229 Mizspoona Selects GP
3236 Golden Frill
3239 Pink Lettucy Mustard GP
3245 Red Giant Mustard
3247 Osaka Purple Mustard
3253 Torziroh
3270 Prize Choy Pac Choi

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3450 Dwarf Blue Scotch
3457 Rainbow Lacinato
3458 Baltisk Rod Purpurkal
3465 Dazzling Blue Dinosaur
3460 Russian Frills
3462 Red Russian
3464 White Russian

LETTUCE pp 37–42

Mixes

2981 Lettuce Mix
2983 DeLuxe Lettuce Mix
2984 Freedom Mix
2985 Red Carpet Mix

Looseleaf

2712 Black Seeded Simpson
2791 Tango
2723 Salad Bowl
2729 Red Salad Bowl
2731 Cracoviensis
2761 Red Sails
2766 Australian Yellow
2773 Hyper Red Rumple Waved
2775 New Red Fire
2786 Red Tinged Winter
2789 Merlot

Oakleaf

2788 Oscarde
2738 Antares

2764 Blushed Butter Oaks
2763 Elf Ears Oak
2781 Merlox Red Oak
2784 Flashy Green Butter Oak

Deer Tongue

2740 Green Deer Tongue
2744 Really Red Deer Tongue
2767 Les Oreilles du Diable

Lollo Rossa

2793 Dark Lollo Rossa
2795 Lollo di Vino

Butterhead

2814 North Pole
2815 Optima
2816 Winter Marvel
2828 Pirat
2831 Speckled Amish
2834 Sweet Valentine
2841 Nancy

Romaine (Cos)

2852 Pandero
2854 Blushed Butter Cos
2855 Jadeite
2856 Mayan Jaguar
2861 Jericho
2862 Better Devil
2866 Plato II
2874 Olga
2877 Marshall
2883 Crisp Mint
2886 Winter Wonderland

Batavian, Crisphead

2905 Cardinale
2908 Concept
2921 Anuenue
2713 Gildenstern
2714 Jack Ice
2924 Crispino

Specialty

2715 Balady Aswan

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984 Pride of Wisconsin
986 Montreal Market
958 Arava Galia F-1 hybrid
943 Prescott Fond Blanc
1003 Blacktail Mountain
1028 Sugar Baby
1035 Sweet Dakota Rose
1063 Crimson Sweet
1072 Moon and Stars
1021 Early Moonbeam

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3697 Red Burgundy
3699 Beck's Big Buck

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2449 New York Early
2474 Clear Dawn
2487 Talon F-1 hybrid
2489 Dakota Tears
2445 Cabernet F-1 hybrid
2490 Rossa Di Milano
2441 Glacier Rose Shallots
2443 Ed's Red Shallots
2407 King Richard Leek
2411 King Sieg Leek
2425 Bleu de Solaize Leek
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758 Emerald Archer shell
761 Green Arrow shell
819 Oregon Giant snow
822 Blizzard snow
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889 Cascadia snap
893 Sugarsnap

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3704 Peacework
3713 King of the North
3706 Gilboa
3723 Purple Beauty
3739 Corona
3738 Klari Baby Cheese
3740 Sweet Pimiento
3741 Amish Pimiento
3757 Carmen F-1 hybrid
3762 Jimmy Nardello's
3764 Apple
3758 Karlo
3759 Boldog
3776 Feher Ozon

Hot Peppers

3845 Hot Portugal
3816 Czech Black
3853 Bulgarian Carrot Chile
3856 Ho Chi Minh
3825 Carrot Bomb
3827 Dulcinea
3831 Jaluv an Attitude
3841 Hidalgo
3866 Matchbox
3805 Beaver Dam
3849 Fish
3860 Thai Hot
3870 Hinkelhatz

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2245 Pearl
2253 Plum Purple
2269 Misato Rose
2268 Green Meat

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2500 Beaujolais
2541 Bloomsdale
2558 Winter Bloomsdale

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1539 Early Summer Yellow
1577 Y-Star F-1 hybrid
1405 Green Machine
1407 Modena
1450 Cassia F-1 hybrid
1457 Costata Romanesca

SQUASH: WINTER & PUMPKIN pp 62–67

1606 Sweet REBA
1611 Zeppelin Delicata
1630 Uncle David's Dakota Dessert
1683 Burpee's Butterbush
1688 Waltham Butternut
1665 Lower Salmon River
1672 Galeux d'Eysines
1676 Candy Roaster
1693 Seminole
1718 Winter Luxury
1720 New England Pie
1723 Long Pie
1743 Good Egg Godiva
1745 Bellatrix F-1 hybrid
1752 Howden

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4012 Purple Blush
4005 Aunt Molly's Ground Cherry

TOMATOES pp 68–75

4149 Heirloom Mix

Red & Pink Slicers

4018 Glacier
4025 Oregon Spring
4038 Cosmonaut Volkov
4049 Pruden's Purple
4050 Bizhiki
4052 KC 146
4055 Rutgers Original
4067 Rose de Berne
4069 German Johnson
4071 Soldacki
4075 Pink Brandywine
4081 Mark Twain
4083 Weisnicht's Ukrainian
4087 Tiffen Mennonite
4238 Luci 2103 F-1 hybrid
4239 Arbason F-1 hybrid

Colorful Slicers

4041 Pink Berkeley Tie-Dye
4045 Garden Peach
4053 Black Prince
4054 Goldie
4058 Cherokee Green
4057 Green Zebra
4059 Cherokee Purple
4060 Paul Robeson
4061 Black Krim
4065 Golden Jubilee
4076 Yellow Brandywine
4077 Pineapple
4080 Aunt Ruby's German Green
4091 Lillian's Yellow Heirloom

Paste Tomatoes

4123 Mr. Fumarole
4125 Heinz 2653
4133 Bellstar
4135 Opalka
4137 Orange Banana
4138 Speckled Roman
4140 Amish Paste
4141 Hog Heart

Small Tomatoes

4103 Gardener's Sweetheart
4108 Be My Baby
4031 Aosta Valley
4033 Copper Beauty
4035 Tropical Sunset
4115 Black Cherry
4118 Principe Borghese
4119 Peacevine
4122 Fargo Yellow Pear
4252 Esterina F-1 hybrid
4265 Cherry Bomb F-1 hybrid

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2379 Purple Top White Globe
2393 Gilfeather

HERBS pp 80–85

4407 Anise Hyssop
4409 Arnica Chamissonis
4411 Ashwagandha
4412 Astragalus
4415 Sweet Basil
4419 Genovese Basil
4468 Kapoor Tulsi Basil
4481 Wild Bergamot
3045 Chervil
4513 Chives
4517 Caribe Cilantro
4531 Bouquet Dill
4547 Echinacea purpurea
4550 Elecampane
4560 Fennel (for seed)
4572 Feverfew
4585 Lavender
4619 Marshmallow
4630 Milk Thistle
4640 Motherwort
4644 Stinging Nettle
4649 Zaatar Oregano
3169 Krausa Parsley
3170 Plain Leaf Parsley
4683 Spilanthes
4692 Blue Vervain

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5804 Beneficials Mix
4832 Hot Biscuits Amaranth
4835 Hopi Red Dye Amaranth
4837 Elephant Head Amaranth
4852 Crego Mix China Aster
4911 Flashback Calendula
4913 Kablouna Calendula
4916 Maya Orange Calendula
4925 Resina Calendula
4927 Solar Flashback Calendula
4929 Zeolights Calendula
4950 Ruby Parfait Celosia
5000 Double Take Columbine
5017 Cupcakes Cosmos
5051 Ballerina Mix Datura
5111 Grace Mix Godetia
5147 Job's Tears
5157 White Finch Laceflower
5277 Kniola's Purple Morning Glory
5300 Only the Lonely Nicotiana
5331 Phacelia
5350 Elka Poppy
5351 Ziar Breadseed Poppy
5366 Drama Queen Poppy
5371 Fluffy Ruffles Poppy
5377 Large Lavender Poppy
5378 Scarlet Peony Poppy
5500 Autumn Beauty Mix Sunflower
5515 Lemon Queen Sunflower
5539 Selma Suns Sunflower
5542 Soraya Sunflower
5603 Sweet Annie
4322 Black Eagle Wheat
4324 Utrecht Blue Wheat
5713 California Giants Zinnia
5720 Jim Baggett's Choice Mix
5906 Hopi Black Dye Sunflower
5930 Sussex Flax

Fedco Seeds guarantees that all items we offer are fully satisfactory. If you are dissatisfied because of any product defect, we will either replace the item or refund the purchase price. **Limitation of Liability:**

Because good results depend upon weather, soil and cultural practices over which we have no control, we limit our liability in all instances to the purchase price of the seeds, as is customary in the seed trade. The liability of Fedco Seeds for breach of warranty, or any loss or damages arising out of the purchase or use of our products, including loss or damages resulting from any negligence whatsoever on our part, or strict liability in tort, shall be limited to the purchase price. By acceptance of the merchandise, the buyer acknowledges that the limitations and disclaimers herein described are conditions of sale, and that they constitute the entire agreement between the parties regarding any warranty or liability.

Claims for errors in your order must be presented within 30 days of receipt of your order. Claims for defects in Fedco Seeds' products should be presented to Fedco Seeds as soon as possible after discovery. Failure to assert claims within 30 days after discovery renders this warranty null and void.

The Glyphosate Roundup

by Nikos Kavanya

> “How could we have ever believed it was a good idea to grow our food with poison?” – Jane Goodall

If you eat food, drink water or breath air, it’s time to reckon with glyphosate. With so many critical issues clamoring for our attention, why focus on this one? Because it disproportionately affects our children and our future. The stakes are high.

I bet that a goodly number of people reading this have a container of Roundup tucked up somewhere in their garage. I do. I bought it years ago, when it was advertised as a “safe” herbicide, to deal with the poison ivy increasing its stride toward my garden. That was before the research about its toxicity to frogs started surfacing.

Before the Sixth Extinction became news, any research that indicated problems with this new agriculture wonder drug didn’t get much traction. In 1992, according to estimates by the U.S. Geological Survey, the U.S. was using almost 14 million pounds of glyphosate; by 2016 that usage had increased exponentially to 287 million pounds. As our usage increases, so have the problems.

This became abundantly clear to me last year as I read a book we had decided to list: *What’s Making Our Children Sick?* (See p. 159) I was gobsmacked. The early research had come of age and formed a compelling case against glyphosate. How had this toxin crept so far under the radar that it now pervaded so many aspects of our health? As adults, with immune systems developed before the onslaught, we might be relatively fine, but the increasing litany of childhood illnesses correlated to the rise of glyphosate leads to the conclusion that younger generations are not so fortunate.

I was fired up, and about to speak at an organic conference in Montana. I tweaked my talk—“Seed as Industry; Seed as Life”—to include this information, which wasn’t news to the Midwestern crowd. In the Northeast we have smaller farms, more buffers, more organics, and one vast no-drift zone to seaward, and every New England state uses far less than 1% of the national usage. Not so in the Midwest, where 8 states comprised 55% of the usage in 2016. The conference included a nurse presenting the negative health impacts of glyphosate and a grain grower who spoke about how the ambient glyphosate in the environment had contaminated his organic crops.

What is glyphosate?

Glyphosate, the most widely used herbicide in the U.S., is a systemic, non-selective, broad-spectrum, post-emergence herbicide, which means it kills any plant not genetically engineered to resist it. It is the active chemical ingredient in Roundup herbicide as well as many other name-brand weedkillers. Studies have found that the full formulations of these herbicides, which may include surfactants to help the glyphosate penetrate plant cells or additives to extend shelf life, can be up to 1,000 times more toxic than glyphosate alone. The producers aren’t required to make a full list of their proprietary ingredients public. One study found an increased specific toxicity to human umbilical, embryonic and placental cells from glyphosate exposure in a combined formula.

In a good soil it has a half life of 22 years.

Glyphosate has been documented in:
- Drinking water
- Mother’s milk
- Food, including wheat, oats, infant formula, children’s cereals, beer, wine, snack foods and ice cream, among others, and including organic products
- Air quality samples
- Rainwater
- Wetlands and sea water
- Urine samples
- Diapers, medical gauze and tampons

A toxic history

When first patented in 1964 by Stauffer Chemical, glyphosate was used as a metal chelator to clean or descale commercial boilers and pipes. As an herbicide and desiccant, glyphosate has been found to bind and remove minerals such as manganese, zinc, iron, copper, nickel, calcium and cobalt from human and animal bodies, and the soil. When glyphosate forms complexes with metal ions in the soil, it affects the availability of those nutrients, which affects nutrient uptake by the roots of plants as well as the translocation of nutrients throughout the plant. Plants struggle along and we eat food devoid of minerals vital to our health. An abstract of interdisciplinary toxicology conveyed that deficiencies in iron, cobalt, molybdenum, copper and other rare metals associated with celiac disease can be attributed to glyphosate’s strong ability to chelate these elements. Deficiencies in tryptophan, tyrosine, methionine and selenomethionine associated with celiac disease match glyphosate’s known depletion of these amino acids.

By 1974 a second patent was filed by Monsanto for glyphosate to be used as an herbicide. Monsanto states that glyphosate kills plants by disrupting the shikimate pathway, a metabolic function in plants that allows them to create essential amino acids. When this path is interrupted, the plants die. Since human cells don’t have a shikimate pathway, scientists and researchers believed that exposure to glyphosate would be harmless, so Roundup got top billing as the “safe pesticide.” The problem is that bacteria DO have a shikimate pathway. According to Don Huber, plant pathologist emeritus from Purdue University, glyphosate works both against the beneficial organisms in the soil while also stimulating pathogens such as fusarium, pythium and rhizoctonia. Without beneficial microorganisms in the soil to compete with and suppress these harmful soil-borne pathogens, the balance of bacteria and fungi shifts to the detriment of soil ecosystem functions and plant health.

In the early ’90s, Monsanto petitioned the EPA to allow triple the amount of Roundup residue on food crops. The first Roundup Ready (RR) soybeans, genetically modified to resist glyphosate, were introduced in 1996. RR corn followed in 1998 and then canola, sugar beets, cotton, tobacco and alfalfa, with wheat still under development.

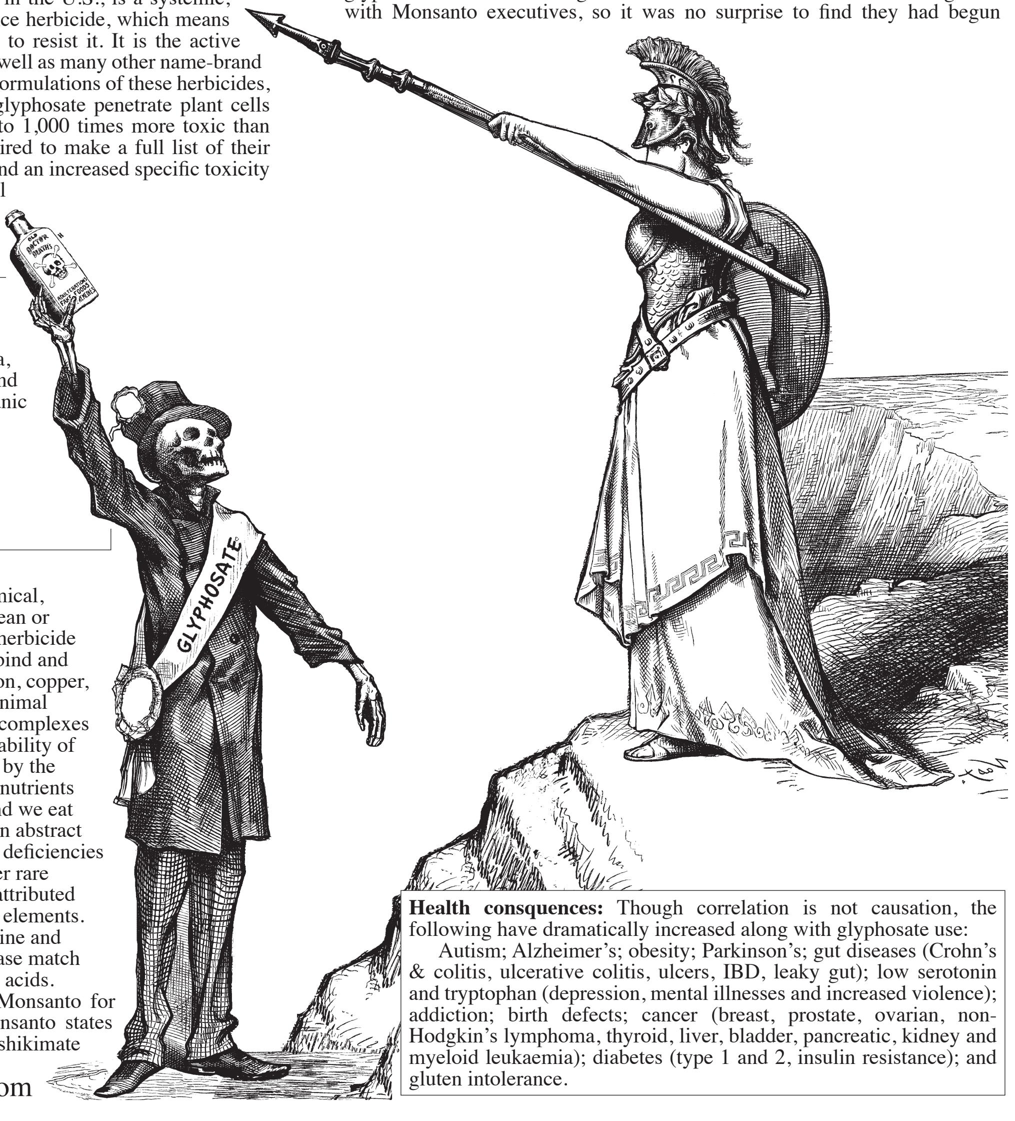
With this rapid rollout of RR (now called GR) crops nationwide, the use of glyphosate skyrocketed. The increase is largely due to “super weeds,” which are resistant to Roundup and necessitate more spraying, which further increases the likelihood of residues in our food.

In 2010, Monsanto was granted a third patent on glyphosate as a parasitic antimicrobial, or antibiotic. It was proposed that glyphosate be used as a treatment for microbial infections and parasitic control of various diseases such as malaria. As a powerful antibiotic, it works against the beneficial organisms in the gut. These bacteria are essential to our digestive health and immune function.

A more recently developed use of glyphosate is as a drying agent for beans, dried peas, lentils and grains (including wheat). It’s also used to “ripen” sugar cane and seed crops.

In 2015 after a year-long investigation, the International Agency for Research on Cancer, an agency of the World Health Organization, concluded that the chemical is “probably carcinogenic to humans” and that there was strong evidence of an association between glyphosate exposures and non-Hodgkin’s lymphoma. Their working group consisted of 17 renowned scientists from 11 countries.

Yet in April 2019 the EPA reaffirmed its finding that there are no risks to public health when glyphosate is used according to the label and that glyphosate is not a carcinogen. The EPA is known to have a revolving door with Monsanto executives, so it was no surprise to find they had begun



Health consquences: Though correlation is not causation, the following have dramatically increased along with glyphosate use:

Autism; Alzheimer’s; obesity; Parkinson’s; gut diseases (Crohn’s & colitis, ulcerative colitis, ulcers, IBD, leaky gut); low serotonin and tryptophan (depression, mental illnesses and increased violence); addiction; birth defects; cancer (breast, prostate, ovarian, non-Hodgkin’s lymphoma, thyroid, liver, bladder, pancreatic, kidney and myeloid leukaemia); diabetes (type 1 and 2, insulin resistance); and gluten intolerance.

working together to stall a toxicology review of glyphosate being conducted by a unit of the Center for Disease Control. They feared the CDC would come to a different conclusion than the EPA at the same juncture that Monsanto was facing a spate of lawsuits brought by people claiming ill effects on their health from glyphosate.

Further health and environmental risks

At the forefront of studying the impacts of glyphosate on human health is Stephanie Seneff, PhD, MIT. Some of her findings are that glyphosate:

- binds to aluminum and mercury and deposits these in the pineal gland. Aluminum in the pineal gland can disrupt circadian rhythms and lead to sleep disorders.
- disrupts human DNA by inserting itself where there should be a glycine molecule. Gets into collagen to cause joint pain.
- sets off an autoimmune reaction to GMO "non-self proteins."
- breeches the blood-brain barrier, which exacerbates the effects of other toxins to which we are exposed.

We also have a broad spectrum of ecological consequences to consider. On farmland, application of glyphosate can significantly lower the populations and diversity of plant species on the edges of fields. Common "weeds" are important food sources for wildlife, including declining bird species. The precipitous drop of the Monarch butterfly population is often attributed to glyphosate, which interrupts their caterpillar stage and eliminates their main food source, milkweed. Monsanto highlights glyphosate as a control for milkweed. It is estimated that milkweed has been eliminated from 250 million acres of U.S. croplands.

The relationship between soil ecosystems and glyphosate is complex and variable. Glyphosate is water soluble but also binds to some soil particles, particularly clay. Midwest farms with their high glyphosate usage drain into the Mississippi watershed, from which those farms' fertilizers have created this summer's Gulf bloom of cyanobacteria, which has prevented humans from swimming without risking rashes, stomach cramps and vomiting. Although it was long believed these plankton could not access phosphonates like glyphosate for food, researchers in Ohio have shown otherwise.

Looking ahead

The tide is turning. Bahrain and five other countries in the Gulf Cooperation Council (GCC) have banned glyphosate. Thailand is set to do so by the end of 2019, Austria on January 1, 2020, and Germany by 2023. Legislation is currently pending in Vermont, Massachusetts and New York to limit or ban glyphosate. Current Maine legislation seeks to ban aerial spraying in the north woods for clearcutting. Many towns, schools and parks have local ordinances against spraying.

The time has come. Let's ban it.

Of course, the battle doesn't stop with glyphosate.

The next herbicide is already out of the pipeline with the EPA's rapid market approval. XtendiMax® with VaporGrip® Technology for use on Roundup Ready 2 Xtend® soybeans and cotton with XtendFlex® technology is a reformulation of the potent herbicide dicamba. It will take years to compile the inventory of hazards tied to this new chemical formulation. But the trademarks are those of the Bayer Group, formerly Monsanto. Instead of Millions Against Monsanto, we will need reformulate ourselves into Billions Against Bayer.

Get involved

In New England, here are some groups working on this issue:

Mass NOFA: nofamass.org
Regeneration Vermont: regenerationvermont.org
Ban Glyphosate (Maine): banglyphosate.net

Most all national environmental organizations are educating their members. **Public Interest Research Group**, Organic Consumers Association's **Millions Against Monsanto** and **Food and Water Watch** are a few groups advocating action.

Closest at hand, the citizens of cities, towns and school districts are uniting to effect local bans. Root out where glyphosates are being applied in your community!

WE
want
HEALTHY
SOIL
ECOSYSTEMS

Seed Industry Consolidation

In lieu of our usual update on seed industry consolidation, we'd like to direct you to Kristina Hubbard's commentary of Philip Howard's updated **Seed Monopoly Chart** on the website Civil Eats:

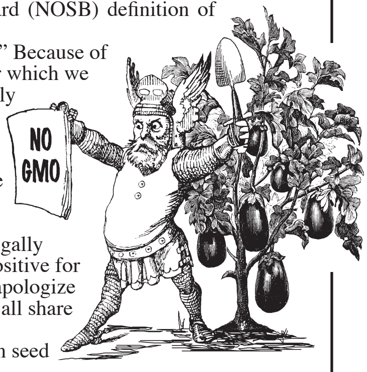
civileats.com/2019/01/11/the-sobering-details-behind-the-latest-seed-monopoly-chart/

Fedco Does Not Knowingly Carry Genetically Engineered Seeds

At our 1996 Annual Meeting we voted unanimously not to knowingly offer for sale any genetically engineered variety because the new gene technologies pose unacceptable risks to the environment. In 1999 we affirmed and clarified that position and will follow the guidelines of the Organic Materials Review Institute (OMRI) which prohibit the use of genetically engineered organisms in organic crop production. OMRI uses the National Organic Standards Board (NOSB) definition of genetic engineering.

Please note the word "knowingly." Because of the possibility of contamination, over which we have no control, our pledge necessarily stops short of being an absolute guarantee. Although we will not sell any variety represented to us as genetically engineered, and we refuse any lot of seed that test positive for GMO content at the lowest detection limit of 0.01%, we will not be held legally responsible if any of our seed tests positive for genetically modified organisms. We apologize for having to split legal hairs, but we all share the reality of genetic drift.

We test beet, chard and sweet corn seed for transgenic contamination. See page 20 for more information.



The Safe Seed Pledge

Agriculture and seeds provide the basis on which our lives depend. We must protect this foundation as a safe and genetically stable source for future generations. For the benefit of all farmers, gardeners and consumers who want an alternative, we pledge that we do not knowingly buy or sell genetically engineered seeds or plants. The mechanical transfer of genetic material outside of natural reproductive methods and between genera, families or kingdoms, poses great biological risks as well as economic, political and cultural threats. We feel that genetically engineered varieties have been insufficiently tested prior to public release. More research and testing are necessary to further assess the potential risks of genetically engineered seeds. Further, we wish to support agricultural progress that leads to healthier soils, genetically diverse agricultural ecosystems and ultimately people and communities.

Join our Cooperative as a Consumer Member

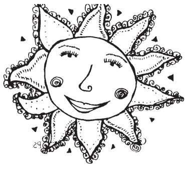
Our 1,177 consumer members and 82 worker members are the foundation of our strength and the fount of our support. Here's your chance to join the Fedco cooperative and help us continue far into the future. We have a lot of work ahead helping build a sustainable seed system.

- We ask for a **$100 membership equity**, refundable at any time upon request.
- If this would be a hardship, there is a $25 option.
- Limited to one membership per household, farm or organization
- For more information see our website: **fedcoseeds.com/members.htm**

Benefits include:

- Our annual members-only newsletter, *Digging Deep and Sowing Wide*
- 1% discount on all orders
- An invitation to our annual meeting
- A chance to vote for and serve on our Board of Directors
- The satisfaction of owning a small part of a successful coop!

Solar Panel Update:
Our 54.56 kW solar array began producing electricity on January 3, 2017. To date it has produced 191.575 MWh of electricity, and we have kept 148 tons of CO_2 out of the atmosphere. Our peak production in 2019 was in July when we generated 8,906 KWh. **We thank our member donors and lenders** who made this expensive project feasible for us!



Yes, I want to join Fedco as a consumer member!

Enclosed is a check for my membership deposit of $100.
Please make membership certificate out to:

Name____

Address______________________________________

City________________St______ Zip________

Customer # (if you know it)______________

Email____

Mail to: PO Box 520, Clinton, ME 04927

FEDCO · SUPPLIES

Garden · Farm · Orchard

Co-optimism for the Future of Farming

To ask "What is the future of agriculture?" is really to ask "What is the future?" To answer it fully one must describe not only the farm and garden of the future, but also future dinner tables, household budgets, fiscal priorities, public health challenges, technologies, and landscapes. Will we buy all our food from Amazon? Will restrictive immigration policies speed the coming of the robot age? Will we try to outsmart climate change by growing things on the moon? (The Chinese have already managed to sprout cotton seeds there, but the seedlings froze on a chilly lunar night: anyone who's ever set her tomatoes out too early knows how that goes.)

Most farmers and gardeners share an almost pathological optimism. It's a necessary trait if one is going to reseed the tomatoes after squandering six weeks of care and a bag of potting soil. This doesn't mean we don't see challenges: optimism sees hope against the odds (otherwise it's just logic). The people we've profiled in this catalog don't deny the threats of pollution, genetic loss, the normalization of extreme weather events, and market consolidation, but they shine light on paths forward for small-scale regenerative agriculture nonetheless.

I am an ex-farmer: my own optimism has taken some hits, but it hobbles along. I don't see an end to the corporate appetite for expansion and assimilation. I don't have faith in the state to protect the commons. I predict that most people in grocery stores will continue minimizing their investments of money and time into the meals they eat, and that more conscientious consumers will continue choosing the cheapest option that lets them feel they are making "better" choices. The fallout from climate change will worsen. Yet I have faith that small farms, good food, and thriving ecosystems will survive.

For one thing, we're already surviving and even spreading. Purists may decry that Walmart's organic milk is not organic enough, but the conversation has undeniably shifted to the point where the mainstream is trying, or at least pretending to try, to make different choices. Even if ideal practice is compromised in production of organics for the masses, I would still choose a world where lots of farmland is being managed *better* over a world where a sliver of land is being managed perfectly. But the fervor of the purists is necessary to keep the conversation moving: if Walmart is just now catching up to the "industrial organic" standard, and the organic community has moved on to "regenerative" standards, that bodes well for the future of agriculture. It's like watching an inchworm move along a branch: the vanguard leaps forward and then drags the body of society along behind it.

I also see a promising new model of small-farm economy emerging. The cooperative model is the adaptation that will allow small-scale sustainable agriculture to survive and thrive into the next century. Few of the back-to-the-landers in the 20th century had much desire to earn their living on the farm: they either had family money or outside careers to fall back on, or they wished to drop out of the monetary economy as thoroughly as possible. My own cohort of small farmers, in the early '00s, had business ambitions, but we each lived out the values of agricultural diversity and farm-to-consumer sales independently on our own farms. It turns out this is exhausting: vertical and horizontal integration are both tools that the big guy can wield more easily than the little guy.

I am talking to more growers these days who recognize that just because they value diversified agriculture and a direct connection to their customers doesn't mean they personally have to grow broccoli and apples and chickens and wheat and take on all the marketing and transportation costs. Growers are pooling their production to achieve better selection and consistency, and sharing marketing resources and distribution channels, so that they can reach previously inaccessible markets and reduce their personal infrastructure. Cooperation allows small growers to enjoy the advantages of larger growers without losing their individual character or much of their autonomy. This approach holds promise for growers' profits and quality of life, land use efficiency, and retail pricing, a win-win-win.

Individually and in cooperation with neighbors, we are all building the future of agriculture every day. What will you eat today? And what seeds will you plant?

– Alice Coyle, OGS Coordinator

NEW! for 2020

Potatoes, Onions & Exotics:

7500 Patterson Onion: We hear the pitter-patter of a Copra replacement!
7519 Yellow Granex Onion: Sweet success for southerners!
7520 Walla Walla Onion: Walla you grow the biggest onion?
7997-7999 Sweet Potato Slips: Easier to grow, in orange, white or purple!
7600 Austrian Crescent Potato: Buttery as a croissant, but not as flaky!
7130 Banana Organic Potato: Same fat fingerlings, now with better karma!
7640 Algonquin Potato: Early and beautiful!
7265 Gold Rush Russet Organic Potato **BACK!** We struck it rich again!
7705 Redsen: Blight-resistant and beautiful!
7875 Genesee: Creamy and beautiful!

Cover Crops & Supplies:

8175 BioOrganics Endo: Permaculturalists can have their mycorrhizae, too!
8180 Mammoth P: For mammoth buds!
8189 Monster Plant Mojo: The new MPM!
8193 Custom Mixing: We'll stir it up, little darling!
8195 Aragonite: **BACK!** For our oyster shell aficionadoes!
8240 Hum-Amend Max: Max out your humus!
8307 Sleepytime Garden Blend: Bedtime stories for your soil!
8317 3G Greener Garlic Grower: Boost your garlic reception!
8348 Biochar: No basalt, no nonsense—just straight-up char!
8351 Superworm Frass: Bug poop grows great bud!
8646 Codling Moth Traps: Trap and lure in one convenient package!
8709 Monterey Complete Disease Control: Control everything! Everything!!!
8710 Cease: Like a legal injunction against fungal disease!
8876 Covertan: There's a new row cover in town!
8961-8963 BeeHut & Reeds: Affordable housing for native pollinators!
8969 Tree Staking Kit: Keep your trees straight!
9195 Punch N Cut: Improve your irrigation, or your boxing skills!
9340 Cloth Produce Bags: Jump on the plastic-free bandwagon!
9353 Sun Sugar Berry Boxes: Cuter (more sustainable) produce packaging!
9433 Fedco Hoodie: Sassy & fashionable!
9453-9454 DinoMelon Shirts: Who's Your Daddy?

You're the Apple of Our Eye

Are you one of the 5,000 people who ordered trees and shrubs from Fedco last year? Protect your investment and ensure bountiful harvests of delicious organic fruit for generations with our lineup for the holistic orchard.

8175 BioOrganics Micronized Endomycorrhizal Inoculant **NEW!**
8194 Orchard Soil Testing Service
8266 Kelp-It Seaweed Powder
8324 Hole-Istic Spring Planting Mix
8330 Fruition Mix for bearing fruit trees
8333 Fall Fruit Tree Prep Mix
8336 Ancients Rise Mix: for revitalizing old trees
8624 Tree Tanglefoot Insect Barrier
8625 BugBarrier Tree Bands
8636 Apple Pest Kit
8646 Codling Moth Trap Kit **NEW!**
8657 Holistic Orchard Spray Kit
8660 Neem Oil: Paint trunks, prevent borers!
8684 Micronized Sulfur
8690 THAT Liquid Sulfur
8711 Stylet Oil
8714 ThermX 70
8717 Nu Film P
8720 Surround WP
8723 Deer Stopper
8726 MoleMax deters voles
8862 Orchard Netting
8865 Deer X Fencing
8961-3 BeeHuts & Reeds for Native Pollinators! **NEW!**
8965 Tree Guards
8968 Limb Spreaders
8969 Tree Staking Kits **NEW!**
8971 Grafting Kits: Bench or Topworking!
8974 Parafilm Tape & **8977** PVC Grafting Tape
8980 Rubber Grafting Strips
8998 World's Best Fruit Picker w/ telescoping handle and padded head
9001 Deluxe Fruit Picking Bucket w/ Harness
9004-9013 Felco Pruners
9037-9038 Felco Saws
9040-9049 Silky Pruning Saws: excellent quality Japanese saws
9064 Sharpener for Dummies: sharpen tools without headaches
9104 Orchard Irrigation Kit (If you're hip to the drip!)
9122-9125 Emitter Tubing: easy orchard irrigation

Web only items: 8648 Yellow Sticky Strips, **8639** Pheromone Wing Trap and **8645** Codling Moth Lure

So Many Ways to Save!

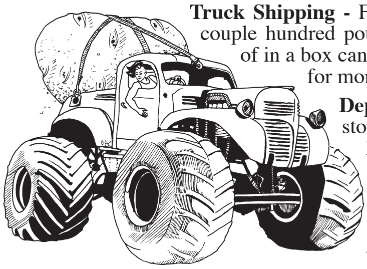
If our list prices or shipping charges look high at first glance, please take another look. Fedco is a big believer in the powers of planning and cooperation to save our customers money and we offer many opportunities to do so:

Volume Discounts - Our volume discounts start at 5% off orders of $100+ and go up from there. Our volume discount chart is displayed throughout this section. Most commercial customers can easily qualify for our bulk pricing program, which kicks in for orders with a retail value of $2500+ and offers discounts of 20-30% off retail.

Rolling Discounts - We love our repeat customers! You don't have to buy everything at once. Once you place a Growers Supply order of at least $100, we calculate your volume discount based on the total of your orders over a rolling 12-month period. Questions? E-mail ogs@fedcoseeds.com

Early Bird Discount - Our crew gets bored sometimes in December, so we offer an extra 5% off Growers Supply orders placed in December 2019 and delivered or picked up by January 10. This is on top of our already awesome volume discounts!

Group Ordering - You can team up with your friends and neighbors to earn higher discounts! Group orders can also share a pallet to reduce shipping costs. We make it easy and painless. For instructions, please visit fedcoseeds.com/ogs/groups.htm.



Truck Shipping - For orders that weigh more than a couple hundred pounds, shipping on a pallet instead of in a box can be very economical. See page 166 for more info.

Depot Shipping - We have farms and storefronts throughout the Northeast lined up to accept monthly pallet shipments of Growers Supply goods so our customers can pick up their orders close to home at shipping costs up to 80% lower than UPS rates. See page 166.

Special Ordering - Many of our soil amendments are available in bulk totes or full truckloads. We can also offer very reasonable prices on items special-ordered from our suppliers if we have enough lead time and don't need to warehouse the items for you. Contact us at ogs@fedcoseeds.com

ORGANIC CERTIFICATION

We are a MOFGA-certified organic repacker and handler of seed and feed. Organically produced items (with **Organic** in the name) are certified by USDA-approved agencies. We have on file each grower's certificate; our products are labeled and handled in ways to ensure their integrity. The receipt with your order has our certification number and is your certificate that what you purchased is organic. Please keep it for your records.

Conventionally grown seed is either untreated or coated with OMRI-listed coatings and inoculants. Certified-organic growers may be able to use such seed: consult with your certifier.

We sometimes have short crops and failed lots. We do occasionally substitute conventional varieties unless you note otherwise. Please see our substitution policy on the right.

Agricultural inputs used on a certified-organic farm must be listed in your Organic System Plan and approved by your certifier. This does not necessarily mean that the inputs themselves are certified organic. We label the inputs we carry as follows:

OMRI: Listed by the Organic Materials Review Institute. Certificate available upon request.

MOFGA: Reviewed and allowed by the Maine Organic Farmers & Gardeners Association Certification Services.

WSDA: Listed by the Washington State Department of Agriculture's Organic Certification division.

Nat'l List: One-ingredient products on the NOP List of Allowed Substances

AYC: Ask your certifier. Has not been reviewed by a certifier, but the active ingredient is allowed.

Not Allowed: Has a place in sensible agriculture; may be used when certification is not an issue.

This information is correct to the best of our knowledge at press time. We cannot be responsible for errors or changes; changes are posted to our website as we become aware of them. In order to be certain that a product is allowed, check with your certifier.

POTATOES, ONIONS & EXOTICS

SPRING PLANTING STOCK

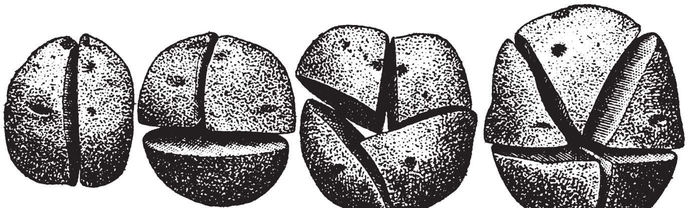
The items on pages 110-115 ship in spring only.

Product availability is upated regularly at fedcoseeds.com. You'll find more ordering info on page 160. For mail orders, use the form on page 163.

- **Potatoes and onion/shallot sets** ship in April.
- **Onion plants and sweet potato slips** are shipped based on zone; see next page.
- **Ginger and Turmeric** ship in early March.

Ordering Deadlines for Potatoes, Onions & Exotics

by February 24	For ginger and turmeric; for best selection of potatoes; or to guarantee availability of early April shipping dates.
by April 6	For potatoes, onion sets & plants, and sweet potato slips.
after April 6	Limited inventory. 50# bags of potatoes (size E) at clearance prices. Availability is regularly updated online.



What is Certified Potato Seed?

All certified seed potatoes start as disease-free clones and are sold to seed growers as minitubers. In Maine, seed potato growers are allowed to replant for six years before they need to start again with disease-free stock. Each year during the growing season farmers seeking certification have their fields inspected for viral and bacterial diseases. After harvest the farmers must submit a sample of each variety for disease testing at the Maine Potato Testing Lab. To be labeled and sold as certified potato seed, lots need to be 100% free of certain pathogens and at least 95% free of others. **We sell *only* certified potato seed.**

We also offer many varieties that are **certified organic**. Their growers have met both the standards of potato seed certification and the standards of organic production.

None of our varieties are genetically engineered. See page 107 for Fedco's policy on GMOs.

Substitutions

Because potatoes are subject to crop limitations, we run out of some varieties. Most people prefer getting potatoes to getting a refund. **Unless you indicate that you will not accept substitutions, we'll follow this protocol:**

For conventionally grown varieties -

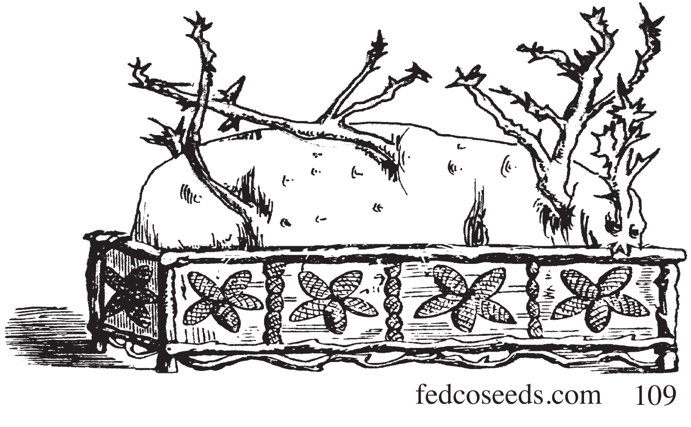
- We will substitute a variety of similar color and season.

For organically grown varieties -

- We will substitute conventional stock of the same variety and refund the price difference.
- If that's not available, we will substitute certified organic stock of a similar variety.

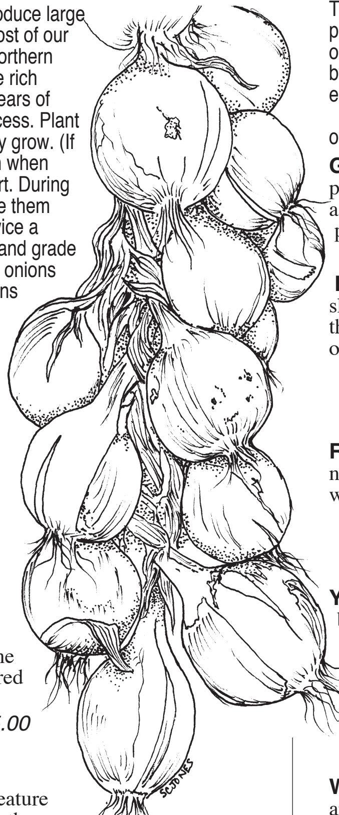
Bulk Prices

If you are ordering more than 1000#, call or write for a bulk price list. Or find it online at fedcoseeds.com.



ONIONS & SHALLOTS

Allium cepa



Onions and shallots are day-length sensitive—to produce large bulbs, plant in spring as soon as soil is workable. Most of our sets and plants are long-day varieties, suitable for northern growers. Shallow rooted, onions and shallots require rich weed-free soil and consistent water. Try our **8318** Tears of Joy Onion Kit (below) to increase your odds for success. Plant onions 3" apart in rows 1' apart and thin to 6" as they grow. (If you don't want to thin, plant them 4–6" apart.) Mulch when they are 1' tall. Plant shallots 4" apart in rows 1' apart. During the season, pull any plants that begin to bolt and use them as scallions. It's a good idea to sidedress once or twice a season, especially close to summer solstice. Clean and grade before storage. Eat double-bulbed and thick-necked onions first because they won't keep. Ideal storage conditions are temperatures at 32˚ with humidity of 60–70%. If you can't do that, work to get a total number of 100. For example, at temperatures from 50–55˚, humidity should be 45–50%.

For onion seed and more cultural information, see pages 47–49.

SETS

Approx. 200 onion sets per pound. Approx. 15 shallot bulbs per pound. We ship sets with potato orders in April.

Stuttgarter Onion Sets These small to medium-size semi-flat firm bulbs will store until June if cured properly. Be sure to plant out your Stuttgarters early, water if necessary, and fertilize liberally throughout the season. Try them in creamy onion dip, or sliced on carne asada, or our favorite: cornmeal and beer-battered onion rings.

7400 ***B**: 2# for $12.00* ***C**: 10# for $45.00*
***E**: 32# for $99.00*

Yellow Moon Dutch Shallots Also called **Multiplier Onions**, these beefy yellow bulbs feature the unique flavor of the shallot sisterhood. Skip the trouble of months of seedling tending for these Dutch-grown shallot sets. These pups can grow as big as small onions, and have unsurpassed flavor. Fancy chefs covet shallots, and home gardeners love an allium that stores through to the next July.

7410 ***B**: 2# for $15.00* ***C**: 10# for $60.00* ***D**: 25# for $115.00* ★

Tears of Joy Onion Kit All you need to grow a bountiful healthy crop of onions, whether you're starting with onion sets or plants or growing your own seedlings. Includes 5# of NutriVeg for season-long release of nutrients; a pint of fish hydrolysate with kelp to get your transplants off to a good start; 50' of white-on-black plastic mulch to stop weeds, retain moisture, and keep the soil comfortable for cool-loving alliums; a quart of Garlic Barrier to deter fungus and insect pests; 25 mesh bags to store the roots of your labor; and growing instructions. All inputs **MOFGA**.

8318 ***A**: kit (13#) for $40.00*

ONION PLANTS

All set with sets? Try onion plants! All other factors being equal, onions grown from seedlings will grow bigger and resist disease better than set-grown onions. Just tease apart the bundles and transplant the bare-root seedlings directly into spring garden beds. Onion plants are drop-shipped Priority Mail directly to you from our Texas supplier, so shipments can arrive from January through April according to your planting zone. (See chart.) You may also request a shipping week when placing your order. Onions are dug as live plants from the field; shipping schedule may be delayed by a week or two due to weather conditions or other variables. You will be notified via email when your order has shipped.

Planting instructions (for conventional growing) will arrive with your shipment. See our website for organic fertilization recommendations.

Gardener's Onion Plant Medley 50 plants each of 3 varieties of onion plants: Patterson, Redwing and Yellow Sweet Spanish. If you want an assortment of onions but don't have space for a hundred of each, try this package deal.

7490 ***A**: 150 plants (0#) for $37.50*

Patterson (104 days) F-1 hybrid. Long-day. Blocky-globed rusty-bronze–skinned Patterson have emerged as Copra's worthy heir. Large, uniform size, thin necks for easy curing, and excellent storage potential. Available as seed on page 48.

7500 ***A**: 100 plants (0#) for $25.00*
***B**: 500 plants (0#) for $115.00* ★
***C**: 2500 plants (0#) for $500.00* ★

Redwing (116 days) F-1 hybrid. Long day. Best red storage onion for northern growers. Hard deep purple-red glossy 3–4" globes store almost as well as old fave Copra. Very high yield potential.

7517 ***A**: 100 plants (0#) for $25.00*
***B**: 500 plants (0#) for $115.00* ★
***C**: 2500 plants (0#) for $500.00* ★

Yellow Granex (125 days) F-1 hybrid. Short day. *Not for northern growers*, better planted south of the NC-VA border. This is the variety that growers in Vidalia, GA, use to grow their world-famous sweet onions. You can't call them Vidalia onions unless that's where you live, but you can still grow some mighty sweet onions. Will store for a couple months if well-cured.

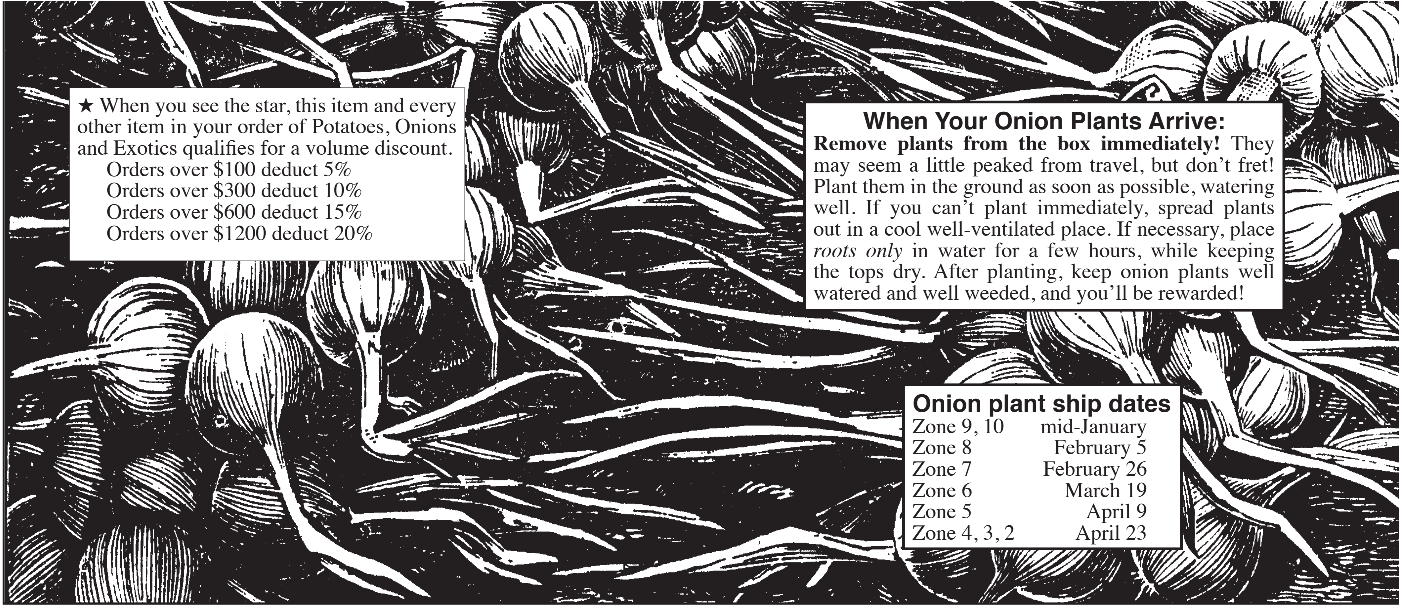
7519 ***A**: 100 plants (0#) for $25.00*
***B**: 500 plants (0#) for $115.00* ★
***C**: 2500 plants (0#) for $500.00* ★

Walla Walla (125 days) Open-pollinated. Long day. These large onions are renowned for their mild flavor as soon as they come out of the ground. Said to have originated in the French island of Corsica and been brought to Washington by a French soldier, this onion became famous in the Pacific Northwest for its juicy sweet flavor and has been in commerce since around 1900. In WA it can be wintered over. In our harsher zone it must be sown in the spring for fall harvest. They do not store. Available as seed on page 47.

7520 ***A**: 100 plants (0#) for $25.00*
***B**: 500 plants (0#) for $115.00* ★
***C**: 2500 plants (0#) for $500.00* ★

Yellow Sweet Spanish (100 days) Open-pollinated. Long to intermediate day. A wonderful OP variety that makes large globe-shaped uniformly sweet bulbs. Really great fresh, but will store up to 4 months with proper curing.

7545 ***A**: 100 plants (0#) for $25.00*
***B**: 500 plants (0#) for $115.00* ★
***C**: 2500 plants (0#) for $500.00* ★



★ When you see the star, this item and every other item in your order of Potatoes, Onions and Exotics qualifies for a volume discount.
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

When Your Onion Plants Arrive:

Remove plants from the box immediately! They may seem a little peaked from travel, but don't fret! Plant them in the ground as soon as possible, watering well. If you can't plant immediately, spread plants out in a cool well-ventilated place. If necessary, place *roots only* in water for a few hours, while keeping the tops dry. After planting, keep onion plants well watered and well weeded, and you'll be rewarded!

Onion plant ship dates

Zone 9, 10	mid-January
Zone 8	February 5
Zone 7	February 26
Zone 6	March 19
Zone 5	April 9
Zone 4, 3, 2	April 23

EXOTICS

- Ginger and turmeric ship in early March, or as soon as weather permits.
- Sweet potato slips ship by zone. In the Northeast they'll ship in mid to late May.

GINGER & TURMERIC

Approx. 10-15 seed pieces per pound.

If you can't begin sprouting right away, ginger and turmeric stock can be stored for several weeks, at above 65˚. Definitely start sprouting them by mid-April.

For New England, we recommend growing ginger and turmeric in hoophouses. They need the heat. To sprout your stock, spread 3" of good potting soil in a crate, arrange rhizomes so they aren't touching, and add soil to cover by a few inches. Our seed ginger is already cut into planting sized pieces; for turmeric, snap off some of the larger "fingers" and plant the main rhizome with a few of the smaller "fingers" still attached. Keep the crate at 80˚ in sun, and keep soil moist but not water-logged. They are sensitive to overwatering, but most sprouting failures are due to low or fluctuating temperatures.After last frost, plant out at 5" apart, in a fertile 6"-deep trench down a 4'-wide bed, and hill during the season. Harvest before frost.

Ginger - Organic *Zingiber officinale* Ginger in this climate? The craze has been sweeping the Northeast. Several successful farms in Maine proved to nonbelievers that the power of high tunnels, irrigation and organic fertility can produce a coveted hand of baby ginger, the most delicate and earthy of tropical crops. Don't hide this precious gem by mincing it small or masking it in heavy sauces: try it as crystallized chunks in homemade vanilla ice cream, or sliced into thick batons in a zesty stir-fry, or slipped over the rim of a fancy cocktail (Baby Ginger Margs, anyone?) Its beauty eclipses supermarket ginger, too: the rose-tinged pearlescent skin will draw customers from yards away. Growing instructions available on our website. Supply limited—order early. *Shipped early March, or as soon as weather permits.*

7990 ***A****: 0.5# (0#) for $15.00* ***B****: 2# for $40.00*
C*: 10# for $150.00* ★ ***D****: 25# for $335.00* ★

Turmeric - Organic *Curcuma longa* This spunky little superfood adds ebullient golden color to curries and sauces. Anti-inflammatory, antiseptic, antioxidant, anticarcinogenic—better get that high-tunnel built! Locally grown turmeric is following in ginger's footsteps as more northern growers and gardeners are giving it a go. Lighter yields than ginger, but restaurants and farmer's market customers will pay top dollar. Blend fresh turmeric and local wildflower honey into gently warmed whole milk for a delicious restorative tonic. Cultivate like ginger—growing instructions available on our website. *Shipped early March, or as soon as weather permits.*

7995 ***A****: 0.5# (0#) for $15.00* ***B****: 2# for $40.00*
C*: 10# for $150.00* ★ ***D****: 25# for $335.00* ★

SWEET POTATO SLIPS *Ipomoea batatas*

Sweet potatoes are tropical drama queens and need lots of heat and pampering to perform in the North. They prefer rich, slightly acidic soil (pH 5.5 to 6.5). Plant slips 18" apart in rows 36" apart. We recommend planting after all danger of frost into hills or raised beds covered with **8421** IRT plastic mulch. Protect the plants with **8877** slitted plastic row cover over **8880** wire hoops and drench the plants regularly with **8292** Fish Hydrolysate with Kelp. Harvest before frost.

Georgia Jet (90 days) **Deep red skin, deep orange flesh.** The standard variety for commercial sweet potato production in the North, Georgia Jet is almost irritatingly reliable in colder climes—bulks up fast and yields like a boss. Moist flesh is moderately sweet.

7997 ***A****: 25 slips (0#) for $25.00*
B*: 100 slips (0#) for $49.00*
C*: 500 slips (0#) for $200.00* ★

Bonita (95 days) **Tan skin, white flesh.** Matures early enough for northern growers to get decent harvests of large top-quality tubers. Bred by the Louisiana Ag Exp Stn for improved soil rot resistance and superior storage capacity. Dry super-sweet flesh was a smash hit in our warehouse taste tests. Makes the best sweet potato fries!

7998 ***A****: 25 slips (0#) for $25.00*
B*: 100 slips (0#) for $49.00*
C*: 500 slips (0#) for $200.00* ★

Murasaki (120 days) **Purple skin, white flesh.** Japanese-type sweet potato requires a longer season to mature; it may pose a challenge to northern growers, but the eating quality is unbeatable. Rich nutty flavor and high sugar content. A shoo-in for our southern customers. If you're one of those Yankee gardeners who can't back down from a dare (who says you can't grow figs and artichokes in Maine?), this is the sweet for you. Well worth the extra effort.

7999 ***A****: 25 slips (0#) for $25.00*
B*: 100 slips (0#) for $49.00*
C*: 500 slips (0#) for $200.00* ★

Sweet potato slips are shipped by zone.

In the Northeast, they ship in mid to late May.

When Your Sweet Potato Slips Arrive:

Slips that can't be planted right away should be put in a vase of water in a warm sunny location. Slips that arrive with few leaves or roots are still likely to perform well; if the slips arrive slimy and rotten, please email us with pictures.

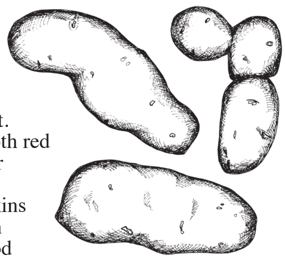
SEED POTATOES

Solanum tuberosum

See pages 116-117 for a comparison chart and growing instructions. We ship seed potatoes in April. Order early for the best selection!

FINGERLINGS

Long and thin, shaped like small fish or maybe even fingers, displaying various skin and flesh colors, fingerlings are often prolific and disease-resistant. Though late maturing, the plants set heavily and small ones can be harvested early. Chefs, market farmers and home gardeners find these beautiful potatoes have unequaled flavor and culinary qualities.



AmaRosa - Red skin, red flesh. These plants cranked out such monster tubers we felt funny charging fingerling prices at market. Classically plump fingerling shape with smooth red skin and creamy red flesh with excellent color retention, AmaRosa made the grade for high yields, and they're tasty as heck. Leave the skins on when cooking, as they have a high vitamin C and mineral content. Good keepers and good sellers. Scab resistant, and also some resistance to late blight. **PVP.**

7595 ***B****: 2# for $9.00* ***C****: 10# for $30.00*
D*: 25# for $60.00* ***E****: 50# for $91.00*

Austrian Crescent - Yellow skin, pale yellow flesh. As lovely as the rising crescent moon on a summer's eve, with unearthly yields. Forget fingers: some sources mention Austrian Crescent tubers as long as 10"! Also called *kipfel*, the German word for a croissant. Croissants have the butter baked in, but we recommend slathering your roasted fingerlings with butter. Combine with Magic Molly and AmaRosa for a rainbow potato salad. **BACK!**

7600 ***B****: 2# for $9.00* ***C****: 10# for $30.00*
D*: 25# for $60.00* ***E****: 50# for $91.00*

Banana - Yellow skin, yellow flesh. Sometimes called **Russian Banana**. Nutty and waxy, Bananas are renowned for their heavy yields of giant fingers. Makes terrible smoothies, but you will spend nights dreaming of long strips of roasted Bananas, simmering in the crackles and pops of the lightest olive oil, with a slight crunch of sea salt and a dash of balsamic vinegar. Resistant to scab, but susceptible to late blight, leafroll and verticillium wilt.

Banana Organic
7110 ***B****: 2# for $12.00* ***C****: 10# for $40.00*
D*: 25# for $80.00* ***E****: 50# for $144.00* ★

Banana Conventional
7610 ***B****: 2# for $9.00* ***C****: 10# for $30.00*
D*: 25# for $60.00* ***E****: 50# for $91.00*

French Fingerling - Dark rose-red skin, yellow flesh with pink lines. This fine fingerling, a spud of lore and song, is more than just a fancy fad. You'll want to pick these sweet little potatoes on the early side to fully revel in their tenderness, before they embark on their more awkward and bulky phase and develop growth cracks. The skin, though it scuffs easily in the packing shed, is worth the extra care, as it stays smooth to the touch, tender and awful pretty. The yellow flesh features a stunning pinkish webbing. Tall spreading plants with wide-set tubers. Resistant to leaf hopper and scab.

French Fingerling Organic
7120 ***B****: 2# for $12.00* ***C****: 10# for $40.00*
D*: 25# for $80.00* ***E****: 50# for $144.00* ★

French Fingerling Conventional
7620 ***B****: 2# for $9.00* ***C****: 10# for $30.00*
D*: 25# for $60.00* ***E****: 50# for $99.00*

La Ratte - Yellow-netted skin, yellow flesh. The name translates to The Rat, which describes the shape well—they are plumper than most fingerlings—but belies their appetizing flavor! This little pet is versatile in the kitchen and the most consistent fingerling in shape and size. You'll welcome these rodents into your packing shed for their ease of sale and "perfect texture," says Heron Breen. Kept in cold storage, La Ratte stores beautifully and maintains its fine quality to sustain you through the winter.

7622 ***B****: 2# for $9.00* ***C****: 10# for $30.00*
D*: 25# for $60.00* ***E****: 50# for $99.00*

Potato Bags Heavy paper bags for storing or marketing your own spuds. To avoid moisture build-up, 5# and 20# sizes have a mesh vent in front and 50# size has punched airholes.

9325 ***A****: 5# bags, bundle of 5 (0#) for $2.75*
B*: 20# bags, bundle of 5 (2#) for $4.00*
C*: 50# bags, bundle of 3 (3#) for $4.50*

Burlap Bag Untreated, holds 50# of potatoes. Also works well in market displays: soak thoroughly to keep produce damp and cool.

9331 ***A****: 3 bags (0#) for $7.75* ***B****: 30 bags (15#) for $65.00*

MORE FINGERLINGS

Magic Molly - Deep purple skin, deep purple flesh. This rockstar potato just won't stop—pick them as sweet little fingerlings early or hold out for larger potatoes later in the season. A rich purple, so deep it's almost black, from skin to center. Distinctive earthy flavor and pleasantly firm waxy texture. A fantastic addition to a dish of roasted mixed vegetables. Ian Jerolmack of Stonecipher Farm in Bowdoinham, ME, has Molly fans among his restaurant accounts; they incited a small riot after his Mollies had been bought up. Vigorous plants, high yields and few diseases.We love Magic Molly so much it inspired the creation of our 2017 cover art superhero. Magic Molly the potato has a slight inclination to scab. Magic Molly the superhero is invincible.

Magic Molly

Magic Molly Organic

7140 ***B**: 2# for $12.00* ***C**: 10# for $40.00*
***D**: 25# for $80.00* ***E**: 50# for $130.00 ★*

Magic Molly Conventional

7625 ***B**: 2# for $9.00* ***C**: 10# for $30.00*
***D**: 25# for $60.00* ***E**: 50# for $99.00*

Pinto - Red and yellow skin, yellow flesh. Don't call Pinto a pony—this potato is a real workhorse. With striking bicolor skins, they practically sell themselves at market. High yields with up to 28 tubers per plant. You'll think an Easter Bunny left you a sweet pile of yellow-spotted pink eggs when you harvest! Buttery and decadent with a creamy texture. In our trials Pinto shows resistance to blight, drought and scab; the leafhopper didn't bother it a bit. Bred by the University of Maine.

7628 ***B**: 2# for $9.00* ***C**: 10# for $30.00*
***D**: 25# for $60.00* ***E**: 50# for $99.00*

Red Thumb - Red skin, pale red flesh. Standing up to early blight is no small task for any potato, not to mention the delicate fingerling class, but the Thumbs do it. Slice one in half at farmer's market to show customers the unique flesh: cream streaked with a light red pigment. Dig early for that classic petite fingerling, or wait for skins to set to secure some lunkers.

7630 ***B**: 2# for $9.00* ***C**: 10# for $30.00*
***D**: 25# for $60.00* ***E**: 50# for $99.00*

Rose Finn Apple - Pinkish-beige skin, light yellow flesh. An heirloom in this over-developed world of plant science, Rose Finn displays some of the prettiest hues of all the fingerlings. Waxy with a dreamy creaminess as unforgettable as its name. Watering unevenly may lead to branching. Susceptible to rhizoctonia, but resists scab—plus its top-notch flavor and appearance will always make it worth growing.

Rose Finn Apple Organic

7170 ***B**: 2# for $12.00* ***C**: 10# for $40.00*
***D**: 25# for $80.00* ***E**: 50# for $130.00 ★*

Rose Finn Apple Conventional

7635 ***B**: 2# for $9.00* ***C**: 10# for $30.00*
***D**: 25# for $60.00* ***E**: 50# for $99.00*

Turbo-Tuber (Approx. 7-2-9, plus 2% Ca and 3.5% S) Magic Molly, our potato superhero, is the fastest girl in town: her jacked-up hybrid hatchback runs on our high-test organic fertilizer, formulated to meet the nutrient requirements of potatoes. Blended in-house from fish meal, feather meal, soybean meal, sulfate of potash, dolomitic lime, pasteurized poultry manure and K-mag. On balanced soils, apply at 5#/25 row feet, 50#/250 row feet, or 2000#/acre and work into the soil to planting depth. MOFGA

8315 ***A**: 5# for $9.75*
***B**: 50# for $72.50*
***C**: pallet 40 bags (2000#) for $1700.00 ★*

EARLY 65-80 days

Algonquin - White skin, white flesh. Large smooth oval tubers size up early and are largely free from internal and external defects. High yielding and scab resistant. Our grower in New York says, "I've grown it for 11 years, and have never been disappointed with it, which is a rare quality for a potato. I don't think you can go wrong with it." Released by Cornell in 2017. The Algonquin people, native to southern Quebec and eastern Ontario, have a much more venerable history. Modern Algonquins have been politically active to defend their resources against commercial wild rice harvesting ventures, the lumber industry and mining companies. **PVP. NEW!**

7640 ***B**: 2# for $5.00* ***C**: 10# for $10.50* ***E**: 50# for $29.00*

Chieftain - Pinkish-red skin, white flesh. Rounded oblong tubers with pinkish-red and slightly netted skin. Shallow eyes for easy peeling. Matures later than most earlies. A Maine red-potato staple for our Aroostook growers, its floury fluffiness is complemented by heaping spoonfuls of butter, garlic and a generous pour of raw cream. Organic stock grown by the hardworking folks at Campbell Family Farm in Littleton, ME, who put their wholesome business practices and sturdy work ethic into high-quality organic seed. The Campbells aren't too busy with their 600+ acres of potatoes to milk a family cow—they know spuds are better buttered. Medium spreading plant with lilac flowers. Scab, net necrosis, stem-end browning and **late-blight resistant.**

Chieftain Organic

7180 ***B**: 2# for $8.00* ***C**: 10# for $20.50* ***E**: 50# for $77.00*

Chieftain Conventional

7650 ***B**: 2# for $5.00* ***C**: 10# for $10.50* ***E**: 50# for $22.00*

Colorado Rose *Not available in 2020.*

Dark Red Norland - Dark red skin, white flesh. Great for new potatoes! For the best potato salad in the world, combine freshly dug young Norlands, homemade mayonnaise, and slivered garlic and fresh sage sizzled in butter (plus coarse salt and cracked pepper to taste). Makes good home-fries, too. Easy-to-grow high-yielding early red. Medium-to-large plants with purple flowers. Fair storage. Resistant to growth cracks, early blight, hollow heart, scab and rhizoctonia. Dig before late blight is a concern.

Dark Red Norland Organic

7190 ***B**: 2# for $8.00* ***C**: 10# for $20.50* ***E**: 50# for $77.00*

Dark Red Norland Conventional

7670 ***B**: 2# for $5.00* ***C**: 10# for $11.25* ***E**: 50# for $26.00*

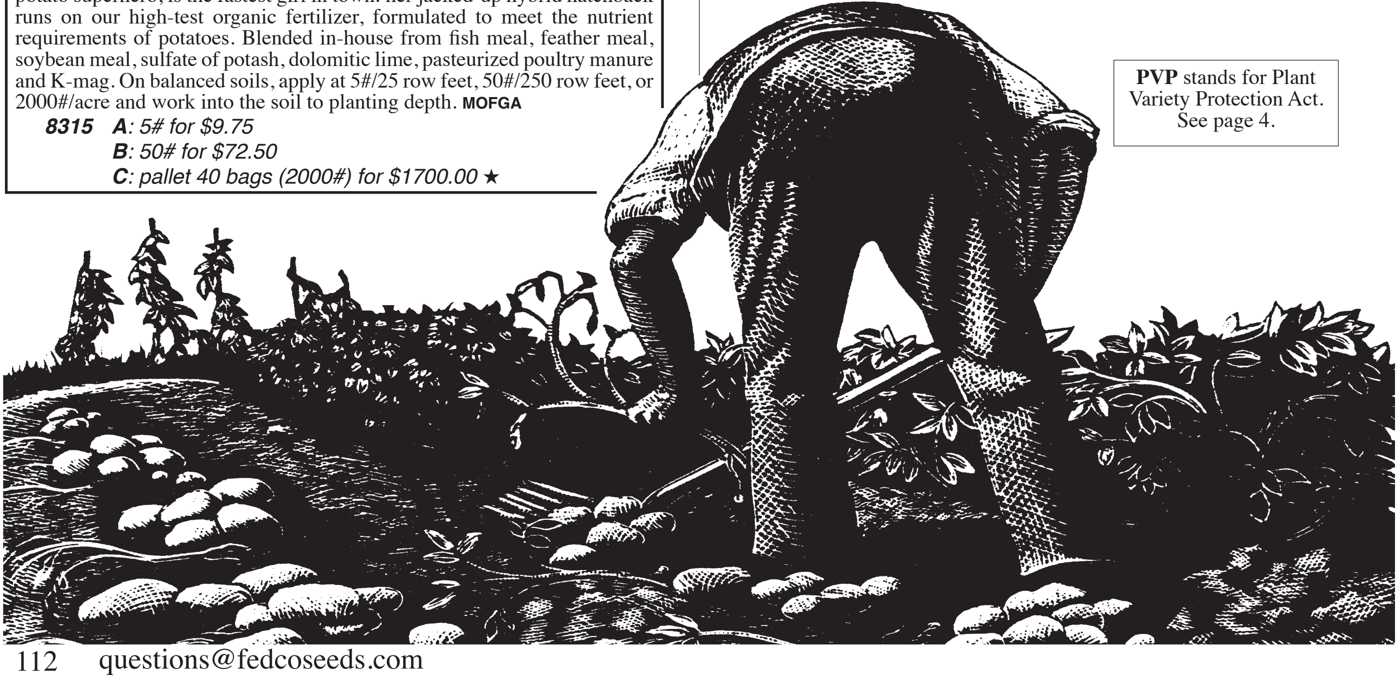
Natascha - Yellow skin, yellow flesh. A higher-yielding alternative to Anuschka and Augusta. You'll be delighted by the multitude of deep yellow, perfectly smooth and amazingly blemish-free potatoes that tumble from the hills at harvest. My favorite early yellow. Excellent flavor with smooth and creamy texture. I like them boiled and buttered, but they are also really nice and creamy whipped with an immersion blender. Resistant to scab, bruising, rhizoctonia, black leg, PVY and tuber rots. **PVP.**

7695 ***B**: 2# for $5.00* ***C**: 10# for $10.50* ***E**: 50# for $35.00*

Red Gold - Pink skin with red eyes, yellow flesh. Red Gold will usher in the summer and knock out any spring doldrums. The bright gold flesh shines like the July sun under which you'll be harvesting. One of the most stunning potatoes in our lineup. Plant close together for a ton of tasty little ovals or farther apart for a heavier yield. With creamy sweetness roasted or fried, Red Gold has a reputation for the hands-down best taste of all the early varieties. Not a great storer. Will stand up against too-wet soil and even some blight.

7700 ***B**: 2# for $5.00* ***C**: 10# for $10.50* ***E**: 50# for $31.00*

PVP stands for Plant Variety Protection Act. See page 4.



Redsen - Very bright red skin, white flesh. If you miss Sangre as much as we do, try Redsen, a cunning all-purpose early potato. Fry whole new Redsens in olive oil: the fluffy nuggets will accompany your July lobster bake beautifully. The best part? It's highly resistant to race 0 late blight! Also moderately resistant to scab. Susceptible to fusarium. The tender skin bruises easily, so give them plenty of time to cure in the field; handle carefully during harvest and as you put them in storage. **NEW!**

*7705 **B**: 2# for $5.00 **C**: 10# for $10.50 **E**: 50# for $29.00*

Satina - Organic - Yellow skin, yellow flesh. They say farming leaves you wicked haggard, so polish up your style for city market with these stunningly chic Satinas. The soft buttery flesh and yellow skin are smooth as silk. Ian of Stonecipher Farm says, "This ain't no Mickey D's fry trash. Satinas are the sparkplug in our skillet." When dug, each plant has one or two thick stalks with a string of large round tubers dangling beneath. Satinas store well and are resistant to common scab. **PVP.**

*7225 **B**: 2# for $8.00 **C**: 10# for $20.50 **E**: 50# for $56.00*

Yukon Gem - Yellow skin with pink eyes, yellow flesh. A modern take on old familiar Yukon Gold, with higher yields and better PVY and scab resistances. Stocked with the latest in plant-vigor innovation, the Gem has surpassed its predecessor in popularity. In 2006, plant pathologists from the Agricultural Research Service in Aberdeen, ID, deemed Yukon Gem ready for the fresh market because of its resistance to costly infections of late blight and dry rot. Matures about 10 days later than Yukon Gold, but worth the wait. **Late-blight resistant. PVP.**

Yukon Gem Organic

*7228 **B**: 2# for $8.00 **C**: 10# for $25.50 **E**: 50# for $97.00*

Yukon Gem Conventional

*7735 **B**: 2# for $5.00 **C**: 10# for $10.50 **E**: 50# for $22.00*

Yukon Gold - Yellow buff skin with pink eyes, yellow flesh. For keeping it classic, you can't beat Yukon Gold's tasty butter flavor and marketable appearance. This Gold, bred to suit Idaho's potato conditions, broke mainstream culture of just white potatoes and we are forever grateful. Yukons are susceptible to potato virus Y and late blight. Also infamous for poor emergence and low yields, which may be partly remedied by planting uncut seed. Yet aficionados of this classic claim its flavor surpasses that of the more utilitarian Yukon Gem. Released by AgCanada in 1980.

Yukon Gold Organic

*7230 **B**: 2# for $8.00 **C**: 10# for $20.50*
***E**: 50# for $58.00*

Yukon Gold Conventional

*7740 **B**: 2# for $5.00 **C**: 10# for $10.50*
***E**: 50# for $22.00*

MIDSEASON 80-90 days

Adirondack Blue - Blue skin, blue flesh. Maintains its color after boiling, roasting or frying. Walter de Jong and his potato-genetics buddies at Cornell released Addie Blue in 2003. They also developed and released modern all-stars Adirondack Red and Keuka Gold, all huge successes in the Northeast, promoting growth in the specialty potato market and providing decent prices for wholesale growers. This blue spud is packed with anthocyanins, powerful antioxidants that can lower risks of heart and neurological diseases. The plants are ostentatious with sprawling blue-tinted foliage. Although tuber dormancy is short and Blue is susceptible to scab, scurf and CPB, appearance is awfully festive. *Note: storage life is short, so seed may be ugly when it arrives. Plant them anyway—odds are they'll be just fine.*

Adirondack Blue Organic

*7240 **B**: 2# for $8.00 **C**: 10# for $25.50 **E**: 50# for $97.00*

Adirondack Blue Conventional

*7745 **B**: 2# for $5.00 **C**: 10# for $10.50 **E**: 50# for $35.00*

Adirondack Red - Red skin, pinkish flesh. These rubies will have your cast iron glistening. Intense bright skin, moist firm flesh that's rich in antioxidants, refuting those who knock potatoes' nutritive qualities. Positive feedback from Stonecipher Farm was flattering but, alas, unprintable. Released by Cornell in 2008 to restore vigor to the red fresh potato scene and qualified as "heirlooms-to-be" by Gourmet. Resists skinning, hollow heart, internal defects and growth cracks.

Adirondack Red Organic

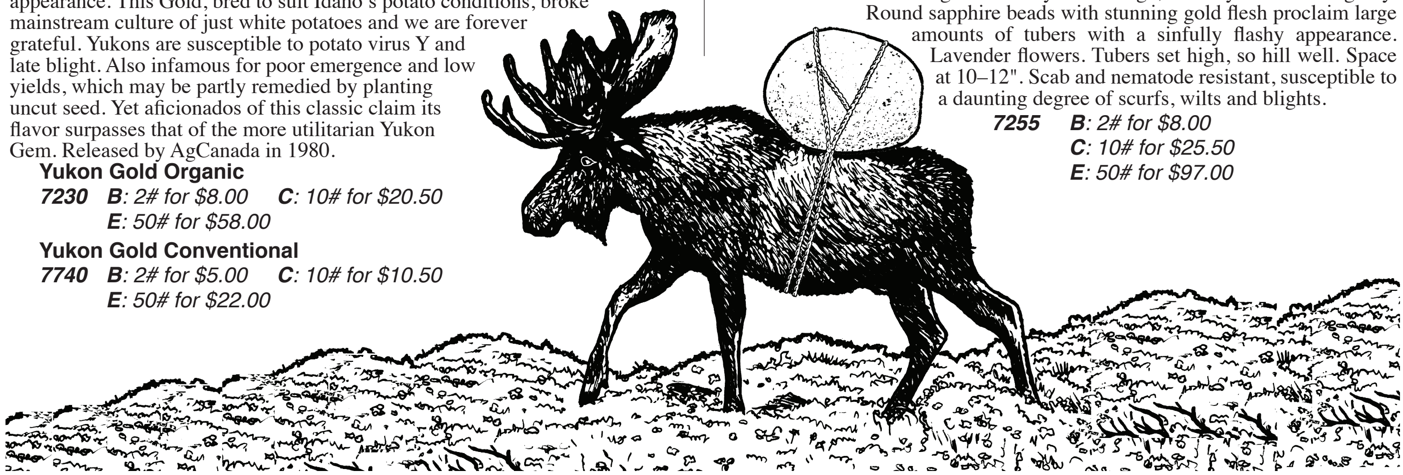
*7245 **B**: 2# for $8.00 **C**: 10# for $22.50 **E**: 50# for $84.00*

Adirondack Red Conventional

*7750 **B**: 2# for $5.00 **C**: 10# for $10.50 **E**: 50# for $22.00*

Blue Gold - Organic - Blue skin, yellow flesh. Also known as **Peter Wilcox** and, although named for Peter C. Wilcox, a professor in the Spiritual and Pastoral Care Program at Loyola College, these yields are ungodly. Round sapphire beads with stunning gold flesh proclaim large amounts of tubers with a sinfully flashy appearance. Lavender flowers. Tubers set high, so hill well. Space at 10–12". Scab and nematode resistant, susceptible to a daunting degree of scurfs, wilts and blights.

*7255 **B**: 2# for $8.00*
***C**: 10# for $25.50*
***E**: 50# for $97.00*



Looking Ahead with 2020 Vision: Bryan O'Hara

Aktan spoke to Bryan O'Hara, an organic vegetable farmer in Lebanon, CT, and expert on no-till and Korean Natural Farming. Watch for his forthcoming book from Chelsea Green. Here is Aktan's account of their conversation:

What are three changes you would like to see in food production?

After pointing out that many *many* things need to change, Bryan said that first he would like to see people valuing quality food again. He contrasted our country's lack of cultural integrity with Europe's stronger cultural connection to food production, where local demand does not allow industry to value efficiency and profit over traditional quality. (He used cheesemaking in Europe as an example.) Once we establish this value base, Bryan proposed, our food-production systems will not be as susceptible to the whims of capitalism.

Second, Bryan demands food sovereignty: a government "that respects the right of all people to produce and consume the food of their choice." Government goes to great lengths to control and regulate the food markets, mostly for the benefit of a few players. He gave the example of raw milk and talked about the fear factor government employs to justify regulations that consolidate power.

Bryan went on to talk about a "*must* change." We need "government policies that do not support and perpetuate the production of poisonous foods." Of course, the subsidies that keep those foods cheap must also end. Pointing to the lack of "true-cost analysis" in the so-called free-market economy, Bryan touched on labor issues and talked about herbicides displacing an entire work force that "hoed" crops. He proposed taxing synthetic materials and the use of machinery instead of taxing those who employ human labor.

How do we remediate degraded/contaminated landscapes and maintain the "organic" integrity of plants and animals we eat?

"Earth is ready to detoxify itself." And according to Bryan, humans can greatly help with this by adopting/adapting earth-friendly farming practices. When soil is healthy, biologically active, and the natural systems are functioning properly, "the abundant humic compounds can bind toxins and insulate the toxic materials from the chemical exchanges of living forms in the soil," therefore keeping them out of the cycling of elements. Bryan calls on us to figure out ways to enhance these natural processes at every level.

What will be the key features of a future garden and/or a small farm?

Bryan referred to F. H. King's seminal book *Farmers of Forty Centuries*, which details the farming techniques of cultures of the Far East and portrays a way of life in which everything is re-used and recycled. Instead of giving specific features, Bryan prescribed a guideline with "an emphasis on effective and careful recycling of all organic materials of human life." Going back to this way of growing food will become a necessity in the future because of its effectiveness and resilience.

How do we adapt to the rapid decline of animal species that humans depend on for food, especially pollinator insects?

"Bees are gone. Katydids are gone. There are no more sap moths in our sap buckets. Far fewer frogs singing at night." After listing more die-offs that he personally has been taking note of in CT, Bryan characterized this shift in biodiversity as "Nature's compassion." He said that parts of Nature are "sacrificing themselves in order for humans to learn how to effectively function in a more balanced relationship with all the other species." He concluded that achieving this balance will require nothing less than a "spiritual shift."

What makes you hopeful?

Even though the "system" in place now, the model of exploitation and defiance, is "wiping out the ability of natural forces to keep feeding humans," Bryan finds hope in the way people respond. He talked of his own experience at the farm and how practices such as "no-till" came from pressures of environmental change. Bryan predicts we will see a widespread return to small farms. We will see an abandonment of machinery, of systems of destruction, of reductionism. He hopes this will lead us to holism and openness. As a final note, Bryan gave a positive piece of advice: "Everybody help each other, on a personal basis. Build community and watch it ripple out."

Caribou Russet - Russeted skin, white flesh. It’s been more than 100 years since herds of woodland caribou graced the state of Maine. At least we can still claim the potato. Named after the city of Caribou in Aroostook County, this 2015 UMaine release was bred for cool climates, which could be especially handy if we decide to follow those caribou herds up to Canada. Vigorous plants produce good yields of large oblong russet potatoes. Using organic practices, we’ve grown really big Caribou. Great mashed, fried or baked. Has an exceptionally low instance of hollow heart, a common problem of most russets. Moderately resistant to scab and verticillium wilt. **PVP.**

Caribou Organic

7259 ***B***: *2# for $8.00* ***C***: *10# for $20.50* ***E***: *50# for $77.00*

Caribou Conventional

7765 ***B***: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $29.00*

Carola - Yellow skin, yellow flesh. Fedco employees can agree on Carola as the best-tasting potato more than we can agree on anything else. These potatoes are rarely uniform but have that charming old-fashioned potato look. Firm and waxy, with flavor loved by all. Great prepared on the grill, wrapped in foil with sliced onion and sea salt. However, Carola isn’t the best performer in the patch—watch out for dreary weather that could wallop your Carolas with fungal blights. Decent scab resistance partially compensates for this weakness. Often fails winter virus test, so availability is unstable. Medium spreading plants with white flowers.

Carola Organic

7260 ***B***: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*

Carola Conventional

7770 ***B***: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Daisy Gold - Organic *Availability uncertain at press time. Check the web!*

Gold Rush Russet - Organic - Russeted skin, white flesh. You’ll feel rich when you start filling your crates with these hulking tubers. A perfect baking potato, and it fries up like a champ, too. The discovery of a gold deposit in Coloma, CA, brought 300,000 people to California from 1848 to 1855. We don’t expect quite that many people to rush for this potato, but it deserves our enthusiasm for its good flavor and reliably high yields. Russets can be fussy in our humid climate, but Gold Rush performs even in wet years or poor soils. Plant at wide spacing to allow tubers to grow to their full potential. 1992 North Dakota Ag Exp Stn release. Uniform, smooth and resistant to hollow heart. Good resistance to scab. Susceptible to blights and fusarium. **BACK!**

7265 ***B***: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*

Kennebec - Buff skin, white flesh. The quintessential Maine potato. Very adaptable to various soil and growing conditions, rugged, but sweet on the inside, just like a true Mainer. A surprise winner for best French fry among several varieties that Tim Cunningham cooked up in a vat of olive oil at our 2017 spring Tree Sale. Large uniform tubers store extremely well and resist late blight. Kennebecs are high yielding, resistant to dry spells and the last potato taken down by the leaf hopper. Shows susceptibility to verticillium wilt and rhizoctonia. Get your fields on a 4–7 year rotation to avoid this variety’s tendency to scab. Large plants have a dense canopy of white flowers. **Late-blight resistant.**

Kennebec Organic

7270 ***B***: *2# for $8.00* ***C***: *10# for $20.50* ***E***: *50# for $77.00*

Kennebec Conventional

7790 ***B***: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $31.00*

Keuka Gold - Buff skin, light yellow flesh. After its release from Cornell in 2004, these large oblong flat tasty tubers gained immediate popularity, especially with growers in the variable climates of upstate New York and New England. In 2009, the *New York Times* featured Keuka, implying its dethroning of the modern potato pop star Yukon Gold, and mentioning its rich flavor mashed or roasted. Shows resistance to scab and golden nematode. Susceptible to rhizoctonia.

7800 ***B***: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $22.00*

Nicola - Yellow skin, deep yellow flesh. Developed in Germany, these medium-large oblong potatoes are on the waxy side and hold their shape, making a preeminent potato salad. Fabulous new potatoes. Attractive firm skin is smooth and velvety. Most known for being on the early side of midseason and a classic “gold nugget” potato. Said to have the lowest glycemic index of any potato. A tried-and-true late-blight survivor; shows resistance to rhizoctonia, blackleg and drought. **Late-blight resistant.**

7810 ***B***: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Purple Viking - Pink-splashed purple skin, white flesh. A crowd pleaser at market and fresh out of the oven, Purple Viking has show-stopping purple skin with vivid pink slashes. Its creamy rich flesh when baked, roasted or mashed will keep the kids happy. For size, style, yield and taste, it’s an all-around winner. Vikings grow on the large knobby side, so if you want smaller, more uniform potatoes plant closer than 10" apart. Shows resistance to leaf hoppers and scab. Often fails winter virus test, so availability is unstable.

7820 ***B***: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Red Maria - Organic - Red skin, white flesh. If you have a potato table at your market stand, Red Maria will fill the bulk red-potato niche. Maria’s skin hue has less visual exuberance than her sister Strawberry Paw’s, but fulfills the needs of 98% of the red-potato customers. Super-sweet moist flesh. Order your extra crates now to accommodate staggering yields to come. Excellent dormancy retention in winter storage. Scab resistant. Reddish-purple flowers, semi-upright dark green vines. Also known as NY-129.

7305 ***B***: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*

Salem - Buff skin, white flesh. Midseason sister of Elba. Loved dearly by storage-crop connoisseur Tim Libby. Generously impressive yields on these plants will have your bushel baskets brimming with dependable all-purpose potatoes. They store well into the winter, and their roundish-oblong shape and earthy flavor make them an exceptional roasting potato. Bred at Cornell as NY-84 and released unofficially in Salem, NY. The plants emerge quickly and bulk up fast. Resistant to golden nematode.

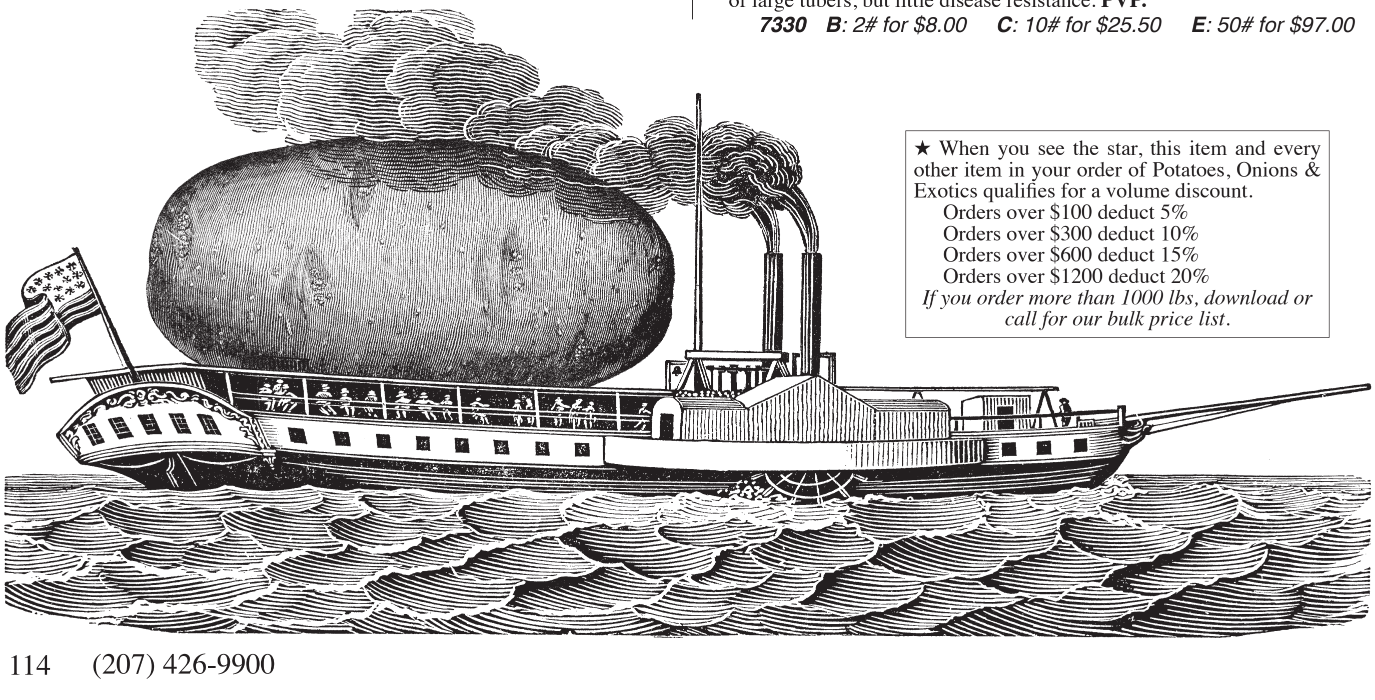
7840 ***B***: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $29.00*

Strawberry Paw - Organic - Bright red skin, white flesh. Developed specifically for blight and scab resistance, the merit of these bright fuchsia gems goes beyond reliably healthy crops. Their flashy display is a fantastic addition to your potato cornucopia. With generally good yields and medium-to-large size, their flesh is firm, sweet and moist. Scab resistant. Becoming known for their vigorous nature and good storage. Also known as NY-136. **PVP.**

7327 ***B***: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*

Vivaldi - Organic - Pale yellow skin, pale yellow flesh. This medium-early oval potato got a lot of press in the UK as a “slimming potato,” as some lab tests have shown it contains roughly three-quarters the calories and carbohydrates of the average potato. Fedco staff commented on its mildly sweet flavor and creamy velvety texture in a warehouse kitchen oven-fry bake-off: we found it worthy of honoring with a violin concerto, and certainly worthy of listing in our catalog. Holds shape well during cooking. High yields of large tubers, but little disease resistance. **PVP.**

7330 ***B***: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*



★ When you see the star, this item and every other item in your order of Potatoes, Onions & Exotics qualifies for a volume discount.

Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

If you order more than 1000 lbs, download or call for our bulk price list.

LATE more than 90 days

Bintje - Yellow skin, yellow flesh. Or Miss Bintje, named after a pupil of the Dutch schoolteacher who released this variety in 1905. (Dutch pronunciation is something like BIN-tchyeh, but it's been Americanized to BEN-jee.) The most widely grown yellow-fleshed potato in the world because of its storability, proficient growth habits and adaptability to a wide range of soil types. Large clusters of smooth golden-fleshed tubers will appear beneath these quickly germinating, vigorous plants. Exquisite flavor; the Dutch know a thing or two about breeding desirable potatoes. Space at 16–18".

7860 B: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Desiree - Rose skin, yellow flesh. She has a satiny rose-red skin and creamy yellow flesh with a distinct flavor. Bred in the Netherlands, these large and long oval tubers will satisfy. High yielding in fertile soil, the plants are rugged and will tolerate drought, also show resistance to late blight, potato virus Y and skin spot. Moderately susceptible to scab. **Late-blight resistant.**

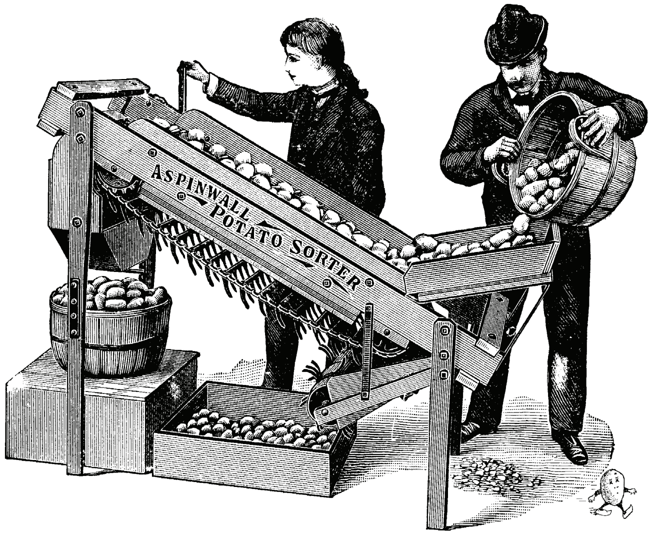
7865 B: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Elba - Organic - Buff skin, white flesh. Elba's dreamy yield will strike out your summer's carried-over debts. Delicious Elba keeps solidly all winter long, despite slow spring emergence. Dan Corey, who grows much of our unique conventional potato stock says, "Elba is hard to screw up, even for the organic guys." Apparently he had so much faith in our organic growers' abilities that he stopped growing this variety, so we are offering only organic seed this year. Bulky standard round white storage potatoes can survive in less-than-optimal conditions. First pick for avoiding fungal blights, including scab and even late blight. **Late-blight resistant.**

7345 B: *2# for $8.00* ***C***: *10# for $20.50* ***E***: *50# for $77.00*

Genesee - Bright white skin, white flesh. Mid-sized round to oblong tubers, largely free from internal and external defects. Slow to emerge and slow to mature, but worth the wait: the flesh is as creamy as the ale produced by Genesee Brewing Company in Rochester, NY. 1992 Cornell release. Resistant to early blight and scab. **NEW!**

7875 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $22.00*



German Butterball - Lightly russeted yellow skin, yellow flesh. These plants produce delectable buttery balls that are hands-down the best-tasting roasting potato in the winter. With flesh just dry enough for a fry or a hash, the Butterball has high yields, good storage qualities and shows some virus resistance. Susceptible to rhizoctonia. Large prostrate vines with few white flowers.

German Butterball Organic

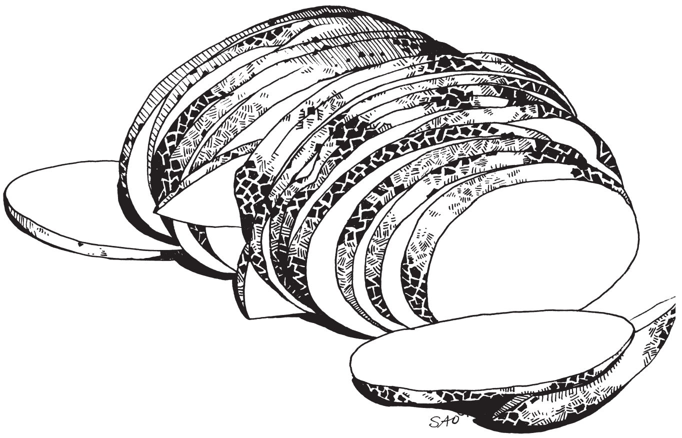
7360 B: *2# for $8.00* ***C***: *10# for $20.50* ***E***: *50# for $58.00*

German Butterball Conventional

7880 B: *2# for $5.00* ***C***: *10# for $14.00* ***E***: *50# for $45.00*

Green Mountain - Buff skin, white flesh. This 1885 heirloom hails from the Green Mountains of Vermont but was made famous by Maine farmers. A true potato lover's potato, baked or boiled. Fedco customer Norman Blake planted a 2-lb bag last season as a favor to his uncle. "He said that his father, my grandfather, esteemed them above all others and was quite vocal about it…I bought a 50 lb bag of wollastonite and sprinkled it into the rows as I went along and the Green Mountains, which have a reputation for low yield, did commendably. Out of that small bag of seed, I filled a five-gallon pail, over 35 lbs, and that was after discarding some that I had damaged during hilling. My uncle stated that he had never seen so many large Green Mountains as well. I used a lot of composted horse manure, but I do every year. The only thing different was the wollastonite." Medium-sized round tubers with unparalleled fluffiness and an authentic earthy flavor that doesn't fade in long storage. An excellent storage variety. Resistant to fusarium storage rot, black leg and verticillium wilt. Susceptible to viral diseases.

7890 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $22.00*



Katahdin - Buff skin, white flesh. Released in 1932 by the USDA and Maine, it is the standard to which all storage potatoes are compared. Mount Katahdin (Maine's tallest peak at 5,267 feet) is famous for its vertigo-inducing "Knife Edge" trail. Whether you're hungry from hiking or gardening, set a kitchen knife's edge to Katahdin the potato and fill your belly with its warm comforting goodness. Very well suited to a Maine growing season, spreading plants can produce some lunkers. The tubers tend towards the soil's surface, so hill well. Resistant to mild mosaic, but not spindle tuber or leafroll. Medium-to-large spreading plant with many large light purple flowers.

7900 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $22.00*

Lehigh - Yellow skin, light yellow flesh. A late-season yellow that produces high yields of large tubers. Released jointly in 2007 by Cornell, U Penn and UMaine and named after Lehigh County in PA, where the field trials were conducted. Has produced consistently high yields across diverse growing regions and conditions. Excellent storage potential. Holds its shape well when boiled, making it ideal for soups and stews, but also great mashed or fried. Resistant to blackspot bruise.

7905 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $35.00*

Red Pontiac - Red skin, white flesh. Red Pontiacs yield large round potatoes with attractive red skin and succulent white flesh that keeps moist all winter long. These multipurpose potatoes are great for the fresh market as they show few defects and continue to store. The plants tolerate drought but are susceptible to most common potato diseases.

7910 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $22.00*

Russet Burbank - Russet skin, white flesh. Known to most as the Idaho Potato, the dry mealy texture makes it a trusty old favorite. A great baking or mashing potato; you'll have the whole winter and spring to experiment in the kitchen. Its reliably high yields mature late in the season, and the plants show resistance to scab, black leg and fusarium. This dependable standard requires heavy feeding and regular moisture for exceptional performance.

Russet Burbank Organic

7370 B: *2# for $8.00* ***C***: *10# for $25.50* ***E***: *50# for $97.00*

Russet Burbank Conventional

7930 B: *2# for $5.00* ***C***: *10# for $10.50* ***E***: *50# for $26.00*

POTATO COLLECTIONS

Having trouble deciding which variety to choose? We put together collections to help. We choose the varieties in the spring when we better know about availability, and we guarantee a diverse selection in every collection. All varieties will be individually packaged and labeled. We might even include one that is not listed in the catalog.

Specialty Organics A well-rounded spud medley from our favorite organic growers covers the seasonal potato spectrum. We'll choose 5 varieties to provide earlies and lates, reds, yellows and whites. Taste the difference that organic production can make. 2# of each variety.

7080 A: *10# for $28.50*

Fantastic Fingerlings A sparkling tapas plate including 3 diverse varieties of gourmet potatoes. If you find a favorite, you can grow it next year. Sample the many colors and shapes that these tasty cuties provide. 2# of each variety.

7085 A: *6# for $24.75*

Classic Keepers Yes, we like to eat potatoes during the growing season, but most importantly, we must feast through the winter. This collection of 5 time-tested winter-storage potatoes will keep your stove cranking and bellies full right through spring parsnip digging. Reds, yellows and whites for full baskets in your root cellar. 2# of each variety.

7090 A: *10# for $17.50*

Potato Sampler Encouraged by writer Joan Dye Gussow, we've created a collection for limited space and expansive palate. This collection of 3 varieties includes 2# each of an early, midseason and fingerling potato. "It never ceases to amaze me what even a small piece of land lovingly tended can produce," Gussow writes in *This Organic Life: Confessions of a Suburban Homesteader.*

7095 A: *6# for $15.00*

POTATOES AT A GLANCE

Variety	OG	CS	Maturity	Skin Color	Flesh Color	Shape	Texture	Yield	Storage	Scab Resistance	Certifier
Adirondack Blue	7240	7745	M	blue	blue	Ob	mealy, floury	M	F	G	ME
Adirondack Red	7245	7750	M	red	pinkish-red	R	moist, firm	M	G	G	ME
Algonquin		7640	E-M	white	white	Ov	moist, firm	H	G	H	NY
AmaRosa		7595	M-L	red	red	F	waxy	H	G	H	ME
Austrian Crescent		7600	M	yellow	light yellow	F	waxy	H	G	G	ME
Banana	7110	7610	M-L	yellow	yellow	F	waxy	H	G	H	ME
Bintje		7860	L	yellow	yellow	Ob	waxy	H	G	M	CO
Blue Gold	7255		E-M	blue	yellow	R	moist, waxy	M	G	G	ME
Caribou Russet	7259	7765	M	russet	white	L	dry, floury	M-H	E	M	ME
Carola	7260	7770	M	yellow	yellow	Ob	moist, firm	H	G	H	ME,CO
Chieftain	7180	7650	E-M	pinkish-red	white	R-Ob	mealy, floury	H	F	H	ME
Dark Red Norland	7190	7670	E	dark red	white	Ob	moist, firm	H	F	H	ME
Desiree		7865	L	rose red	yellow	L-Ov	moist, firm	H	G	M	CO
Elba	7345		L	buff	white	R	moist, firm	H	E	H	ME
French Fingerling	7120	7620	M-L	dark rose-red	yellow w/ pink	F	waxy	H	G	H	ME
Genesee		7875	VL	bright white	white	R-Ob	moist, firm	M	G	H	ME
German Butterball	7360	7880	L	yellow w/ light russet	yellow	Ob	medium-dry	M-H	E	G	CO
Gold Rush Russet		7265	M	russet	white	Ob	dry, floury	H	G	G	ME
Green Mountain		7890	L	buff	white	Ob	dry, mealy	M	E	M	ME
Katahdin		7900	L	buff	white	R	moist, firm	H	E	M	ME
Kennebec	7270	7790	M	buff	white	Ob	moist, firm	H	E	M	ME
Keuka Gold		7800	M	buff	light yellow	Ob	moist, firm	H	G	H	ME
La Ratte		7622	L	yellow netted	yellow	F	waxy	H	G	G	CO
Lehigh		7905	M-L	yellow	light yellow	R	waxy	M-H	E	G	ME
Magic Molly	7140	7625	M-L	deep purple	purple	Ob	moist, waxy	H	E	G	ME
Natascha		7695	E	yellow	yellow	Ob	waxy	H	G	H	ME
Nicola		7810	M	yellow	dark yellow	L-Ov	waxy	M-H	G	G	CO
Pinto		7628	L	red w/ yellow spots	yellow	F	dry, floury	H	G	H	ME
Purple Viking		7820	M	purple w/ pink splashes	white	R	moist, firm	H	E	H	CO
Red Gold		7700	VE	pink w/ red eyes	yellow	Ov	waxy	H	F	M	ME
Red Maria	7305		M	red	white	R	moist, firm	H	G	H	ME
Red Pontiac		7910	L	red	white	R	moist	H	E	M	ME
Red Thumb		7630	L	red	pale red	F	waxy	M	G	M	ME, CO
Redsen		7705	E	bright red	white	R-Ob	dry, floury	M-H	F	G	NY
Rose Finn Apple	7170	7635	M-L	pinkish-beige	light yellow	F	waxy	H	G	H	ME,CO
Russet Burbank	7370	7930	VL	russet	white	L	dry, floury	H	E	H	ME
Salem		7840	M	buff	white	R-Ob	moist, firm	H	E	G	WV, NY
Satina	7225		E-M	yellow	yellow	R	moist, firm	H	E	H	ME
Strawberry Paw	7327		M	bright red	white	R	moist, firm	H	E	H	ME
Vivaldi	7330		E-M	pale yellow	pale yellow	Ov	moist, firm	H	G	M	ME
Yukon Gem	7228	7735	E	yellow w/pink eyes	yellow	R-Ob	firm, creamy	H	G	H	ME
Yukon Gold	7230	7740	VE	yellow-buff w/pink eyes	yellow	Ov	firm, fluffy	M	E	M	ME

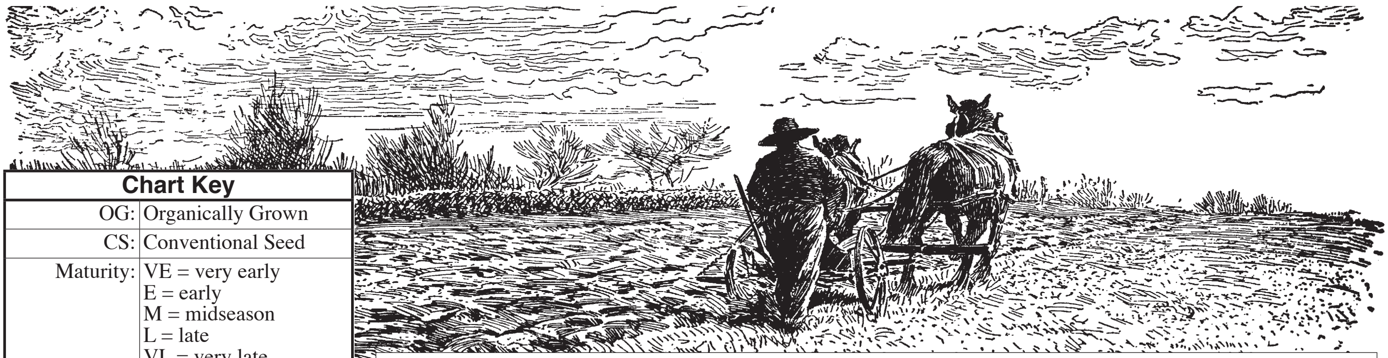


Chart Key

OG:	Organically Grown
CS:	Conventional Seed
Maturity:	VE = very early E = early M = midseason L = late VL = very late
Shape:	R = round L = long Ob = oblong Ov = oval F = fingerling
Yield:	M = medium H = high
Storage:	F = fair G = good E = excellent
Scab Resistance:	M = moderate G = good H = high
State certification agency:	ME = Maine CO = Colorado NY = New York WV = West Virginia

SCATTERSEED PROJECT

Will Bonsall moved to Industry, ME, in 1971 to live simply and self-sufficiently. He runs Khadighar Farm with his partner Molly Thorkildsen. Will's Scatterseed Project hosts and preserves thousands of genetically diverse crops well-suited to Maine's seasons and soils. The project focuses on a few vegetable families and makes a valiant effort to keep viable a healthy selection of genetics. One of Will's main focuses is clonally propagated tubers with more than 700 varieties of potatoes and the most extensive Jerusalem artichoke collection in North America. Scatterseed is beyond heroic, maintaining 1200 pea varieties as well as other legumes: chickpeas, favas and runnerbeans.

Because two-season, or biennial, crops are hard to overwinter or store in our Maine climate, there are few growers in New England saving seed for crops such as rutabagas, leeks or turnips. However, Will tends a magnificent collection of these as well, concentrating on those crops that excel in our challenging climate.

To round out his collection and to emphasize self-sufficiency, Will plans to add what he considers the easier crops to his seed-saving work, like beans, tomatoes and grains.

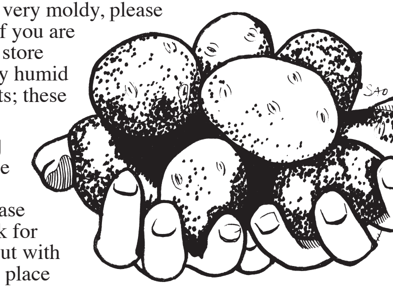
The vital work of seed-saving doesn't leave much room or time for raising market crops. Will earns little revenue from his crusade. Scatterseed may be the only place on the planet where some of these varieties are still alive. Here a little more labor can mean huge success. Your donations make a real impact—more than $800 in 2019. Scatterseed relies on our support. Consider making a donation on the Potatoes, Onions & Exotics order form (p. 163) to keep the work going and to ensure that we can continue to enjoy our world of vegetable wonders.

To learn about Will's growing methods, check out his recent book: *Will Bonsall's Essential Guide to Radical, Self-Reliant Gardening* (**9819** in the book section.)

GROWING POTATOES

Upon Arrival

Inspect your order as soon as it arrives. Seed potatoes may not look appetizing: that's ok! Sprouting, shriveling, wrinkles and minor blemishes are normal and will not affect the performance of your potato patch. If your seed potatoes are mushy, weeping or very moldy, please contact us at ogs@fedcoseeds.com. If you are not going to plant within two weeks, store seed in a dark cool (around 40°) fairly humid place. Do not remove growing sprouts; these are your new plants.



Chitting or Green Sprouting

You may use chitting to encourage early growth, speed development of marketable tubers, and perhaps increase yields. Warm tubers to 65° in the dark for about two weeks, then spread them out with most of the eyes facing up in a warm place (60–70°) with medium light intensity for about two weeks. This stimulates strong stubby sprouts at the bud end that are not easily broken off.

Soil Preparation

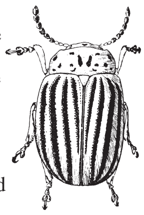
Potatoes grow in any well-drained fertile soil. Work in compost or aged manure, or try our house-blended **8315** Turbo-Tuber fertilizer, specially formulated to meet the needs of the potato plant. Using uncomposted manure, lime or wood ash the year of planting will increase the incidence of scab. Turn new ground the year before and plant with a rye/vetch cover crop. Rotate potatoes (and other Solanaceae family members: tomatoes, peppers and eggplants) with other plant families in at least a 3-year or, preferably, a 4-year rotation.

Cutting Seed

Small tubers planted whole are less sensitive to seed piece decay than cut pieces. You can cut large tubers into pieces of 2 oz or more, about the size of an egg, with at least two eyes. Many varieties have eyes clustered at one end, so be sure to distribute eyes evenly when cutting. Fingerling eyes spiral the length of the tuber so you may cut them into discs or wedges. Consider treating cut seed with **8173** Myco Seed Treatment. To reduce the risk of seed piece decay, either cut and plant in one operation or condition the cut seed pieces at 55–60° and 90% humidity for 3–4 days. Covering pieces with damp burlap bags or towels is a way to maintain humidity levels.

Spud Pests

Like most crops, potatoes are affected by various insects and diseases. The Colorado potato beetle and the potato leafhopper are the most damaging insects. Some diseases such as late blight (see right) can also be harmful; others are mostly cosmetic, like common scab. Leafhopper damage, or hopperburn, can be mistaken for late blight. Consult your local Cooperative Extension office for help with spud problems.



Colorado Potato Beetle Control

Here are several steps that help in the battle against CPB.

Soil health - Healthy soil produces healthy plants, and healthy plants experience less insect and disease pressure.

Crop rotation - Rotating plant families in 3–5 year rotations really helps to control insect and disease problems.

Field scouting - In home gardens, as plants emerge, handpick beetles and larvae; drop them into a container of soapy water. Look under the leaves for orange egg masses and squish them.

Planting later than normal - Takes plant emergence out of sync with beetles' cycle and helps reduce CPB's early egg laying.

Spraying - If your area is too large for handpicking, you could consider:

- Surround (**8720**), a kaolin clay formulation, forms a barrier on leaves.
- Entrust (**8759** on our website), a spinosad insecticide active on several orders of insects.
- Monterey Garden Spray (**8762**), a spinosad for home gardens.
- Pyganic (**8765**) or Bug Buster-O (**8768**), broad-spectrum pyrethrum insecticides.

Walking the field - Several days after spraying, handpick larvae that the spray missed.

As always, vigilance is the watchword. Please send us your feedback: what worked or didn't work for you?

If you are trying to identify a pest, or need to send an insect or plant sample to a lab for diagnosis, go to extension.umaine.edu/ipm/ipddl/, a useful website of the plant disease diagnostic laboratory, or contact your local Cooperative Extension Service.

Certified-organic Growers

We list several products for certified-organic growers but be aware that no pest- or disease-control product is allowable without filing a plan for its use under the NOP. See pages 109 and 137 for more information.

Planting

Plant when the soil is 55–60° and dry enough to work easily, about when dandelions bloom. Planting in cooler soil slows emergence and increases the chance of seed piece decay. Planting in hot dry soil also increases the risk of seed piece decay. Plant in furrows 4–6" deep, in rows that allow for your style of hilling. Space new potatoes and fingerlings at 8" for maximum tuber set. Space later-season varieties at 10–12" for maximum size. One pound of seed will usually plant 5–8 row feet, depending on the variety; 10# will usually plant 50 row feet. 2 oz seed pieces 12" apart with 40" row spacing, requires approximately 1600# (or 1000# fingerlings) per acre.

Cultivation and Hilling

Cultivate shallowly as needed during early growth. Hill when plants reach 6" and again at 12–15". After the second hilling, plants will shade and outcompete weeds. Don't cover plants completely when hilling. Be gentle so as not to damage the roots. Hilling gives the plants room to develop potatoes between the seed piece and the soil surface; it also warms the roots, stimulating growth. Mulching plants after the second hilling helps to retain soil moisture, control weeds and reduce incidence of sunburn.

Irrigation

Potato plants are sensitive to small changes in soil moisture because of their shallow (12–15") root systems. Tuber yield and size are directly related to the amount of water available during two critical growth stages: tuber initiation and tuber bulking. Tuber initiation is a 10–14 day period when tubers form at stolon tips. For most varieties, the end of this stage coincides with early flowering. Tuber bulking follows and continues until plants are mature. Lack of water tends to increase incidence and severity of scab, and will affect yield and overall size of the potatoes. Inconsistent water may cause growth cracks, hollow heart and second growth. Ensure 1" of water weekly from plant emergence until two weeks before harvest.

Harvest and Storage

Early harvest or "robbing the plant" can be done anytime you can find potatoes, approximately 60 days after planting or 30 days after flowering. These are new potatoes to be eaten; they will not store well.

Potato plants are mature when the vines start to senesce, or die back and fall over. You may cut, mow, flame-kill or allow them to die naturally. Leave tubers in the ground for 14–21 days after the vines are dead before digging to give the skin time to "set," and to prevent transmission of blight spores from foliage to tubers. Harvest in cool dry weather if possible. After a brief drying, out of direct sunlight, lightly brush off excess dirt but don't wash potatoes intended for storage. Hold at 55–60° for several weeks to allow harvest injuries and bruising to heal; then store only sound tubers at 38–40° with 85 90% relative humidity in complete darkness.

Yields

An average yield is 10# harvested to 1# planted (10:1). Less than 6:1 probably indicates a problem, likely caused by low fertility, lack of water, or excessive disease or insect pressure. Yields as high as 20:1 are exceptional, but can be achieved.

Late Blight

Late blight is a fungal disease that attacks the foliage, fruit and tubers of tomatoes and potatoes. The fungus *Phytophthora infestans* (genus translates as "plant destroyer") flourishes in cool, wet conditions and can wipe out robust plants. Traveling by air (though it can be seed-borne in potatoes as well), the spores swiftly proliferate in wet conditions between 60° and 80°. Infected plants develop greyish-black lesions on leaves and stems, often accompanied by fuzzy white fungal growth. Left uncontrolled, the blight can spread to the tubers as well.

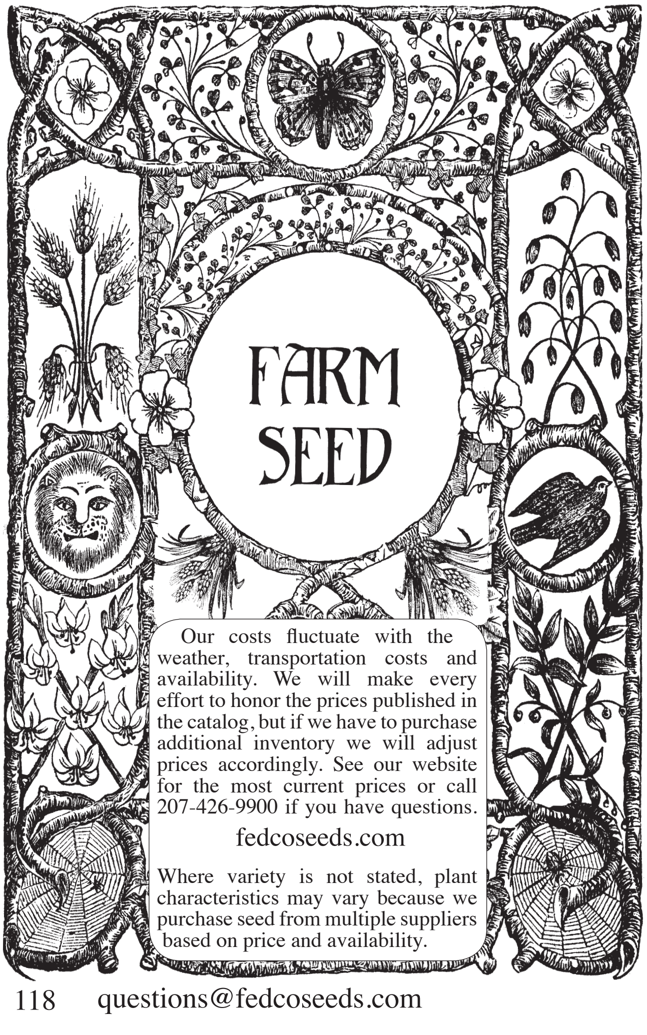
Here are a few **tips for healthy crops:**

- Plant only seed that is certified disease-free (that's us).
- Consider planting late-blight resistant varieties. If a variety shows field resistance to late blight, we mention it in the description.
- Consider beginning the season with preventive measures. Regalia (**8693**), formulated with an extract from giant knotweed, induces systemic resistance to Phytophthora and other pathogens. With translaminal action, spraying the tops of leaves extends coverage to the bottoms as well. Spray every 7–14 days to protect new growth. Cease (**8710**) and Actinovate (**8702**) colonize leaf surfaces with beneficial bacteria that inhibit the growth of predatory fungus. Also consider Monterey Complete Disease Control (**8709**). Cueva copper soap (**8675** on our website) can be applied as a preventative spray.
- As a last resort, if lesions appear, apply Badge X2 copper hydroxide (**8681** on our website).
- Avoid overhead irrigation just before dusk, as prolonged wet vegetation is a prime target for the blight.
- Hill potatoes well to reduce the transmission of infection from leaf to tuber. Growing potatoes in plastic mulch may help.
- Do not compost any infected plant material. Freezing kills spores; be sure plant tissue is thoroughly frozen. The best method to sterilize your field for next year may be to leave sick plants on the surface to freeze.

Stay up-to-date by watching MOFGA's bulletins (Go to mofga.org, choose Publications, then Pest Reports) or contact your local Cooperative Extension Service for more information.

FARM SEED AT A GLANCE

Item	Type	Best Uses[1]	Planting Time[2]	Optimum pH	Seeding Rate[3] /1000 sq ft	Seeding Rate[3] /acre	Nitrogen Fixation[4]	Organic Matter[5]
8001	Alfalfa, all types	hay, pasture, N-fix, OM, bees	8+ weeks before FF	6.5-7.0	1/2#	15-25#	high	medium
8004	B&B Mix	WC, OM	Early Summer	6.0-7.5	2#	50-75#	low	high
8007	Barley	WC, food, SC-N, feed	Spring, soil at least 55°	6.0-7.5	3#	100-125#	—	medium
8010	Bell Bean	N-fix, OM, food, feed	Spring or Fall	6.0-7.0	5#	150-200#	high	medium
8013ff	BMR Sorghum/Sudangrass	pasture, OM, WC, SC-N, EC	Soil over 60°	6.0-7.5	2#	40-80#	—	high
8019	Buckwheat, common	food, bees	80-90 days before FF	6.0-6.5	1#	40-60#	—	low
		WC, SC-P	LF to 4 weeks before FF	6.0-6.5	3#	80-120#	—	low
8022	Chicory, Forage	pasture	Soil over 55°	5.5-7.5	1/4#	3-8#	—	low
8025	Clover, Crimson	pasture, hay, N-fix, WC, bees	Soil over 65°	5.0-8.0	1-2#	25-50#	high	medium
8028ff	Clover, Red, all types	N-fix, hay, pasture, OM, bees	Soil over 50°	6.0-7.5	1/2#	5-20#	medium	medium
8037ff	Clover, White, all types	pasture, N-fix, OM, lawn, EC, bees	Late Winter to FF	6.5-7.5	1/4#	2-10#	medium	medium
8046	Clover, Yellow Sweet	N-fix, OM, bees	Spring & Summer	6.0-8.0	1/2#	10-20#	high	medium
8058	Corn, all types	feed, silage, food	Soil over 60°	6.0-7.0	1/2#	15-20#	—	low
8061	CR Lawn Mix	lawn, orchard groundcover	LF to MS	6.0-7.0	3-4#	100-150#	low	medium
8062	Magic Carpet Mix	OM, WC, bees, SC, EC	Early to Mid-Spring	6.0-7.0	1/2#	25#	medium	medium
8064ff	Millet, Japanese	WC, OM, SC, silage, hay, pasture	2 wks before LF, to MS	5.5-6.0	1-2#	25-50#	—	high
8068	Millet, Pearl	OM, SC, silage, hay, pasture	2 wks before LF, to MS	5.5-6.0	1-2#	25-50#	—	high
8070	Mustard	PC, SC	Spring to FF	5.5-8.3	1-2#	15-25#	—	low
8073	NOFA Cocktail	OM, SC, WC	MS to FF	5.5-7.5	1#	50-75#	medium	high
8076ff	Oats, all types	WC, OM, straw, feed	Soil over 50°, Spring to FF	5.0-6.5	3-4#	100-150#	—	high
8088	Orchard Grass	pasture, hay	Late Winter to Late Summer	5.8-7.5	1/2#	5-15#	—	high
8094	Pasture Mix	pasture	Mid-Spring to Late Summer	6.0-7.0	2#	40-50#	low	high
8097	Pea, Field/Forage	pasture, silage, N-fix, WC	Spring, soil over 45°	6.0-7.0	2-5#	100-200#	medium	low
8103	PVO Mix	OM, N-fix, WC	Mid-Spring to Late Summer	6.0-7.0	5#	150-200#	medium	medium
8106	Radish, Tillage	SC, EC	Late Summer to FF	6.0-7.5	1/4#	5-10#	—	low
8109	Rye, Winter	OM, WC, SC, food, EC	2 wks before to 2 wks after FF	5.0-7.0	3-5#	100-200#	—	high
8112	Rye/Vetch Mix	N-fix, OM, WC, EC	2 wks before FF to FF	6.0-7.0	2-3#	75-100#	low	high
8121	Ryegrass, Annual	OM, WC, EC, SC-N	Soil over 50°	6.0-7.0	1-2#	15-50#	—	high
8124	Ryegrass, Perennial	pasture, WC, OM, EC, SC-N	2 weeks before LF, to FF	5.2-8.0	2#	30-60#	—	high
8133	Sunn Hemp	OM, N-fix, PC	Soil over 60°, to Late Summer	5.0-7.5	1-2#	30-50#	medium	medium
8136	Timothy	hay, pasture	Mid-Spring to Late Summer	5.5-7.0	1/2#	10-15#	—	high
8139	Vetch, Hairy	N-fix	Mid-Spring to FF	6.0-7.0	1-2#	20-30#	medium	low
8145	Wheat, Spring	OM, food	Soil over 50°	6.0-7.0	3-4#	100-125#	—	medium
8148	Wheat, Winter	OM, WC, food, feed	2 wks before FF to FF	6.0-7.0	3-4#	100-125#	—	medium



Our costs fluctuate with the weather, transportation costs and availability. We will make every effort to honor the prices published in the catalog, but if we have to purchase additional inventory we will adjust prices accordingly. See our website for the most current prices or call 207-426-9900 if you have questions.

fedcoseeds.com

Where variety is not stated, plant characteristics may vary because we purchase seed from multiple suppliers based on price and availability.

Chart Key:

ff=and following

[1]**Best Uses:**

- **bees:** provides bee forage for honey production
- **feed:** produces a grain or bean suitable for animal consumption
- **food:** produces a grain or bean suitable for human consumption
- **EC:** erosion control—roots hold soil well
- **hay:** maintains nutritional quality when dried
- **lawn:** suitable for heavy traffic areas, withstands mowing
- **N-fix:** green manure fixes nitrogen, available to subsequent crops when tilled into soil
- **OM:** organic matter—soil builder green manure, produces fibrous biomass and improves soil structure
- **pasture:** superior nutrition and yield, withstands grazing
- **PC:** pest control—reduces insect, disease, or nematode pressure
- **SC:** scavenger crop—quickly takes up nutrients from soil, preventing their loss to erosion or leaching. **N:** nitrogen, **P:** phosphorus
- **WC:** weed control—physically out-competes or chemically inhibits weeds

[2]**Planting Time:**

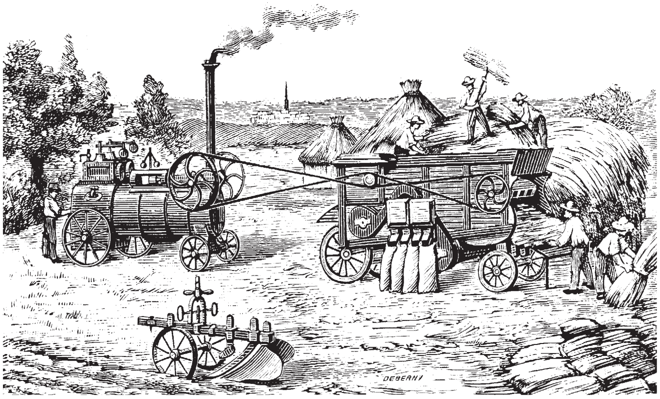
LF = Last Frost in spring
FF = First Frost in autumn
MS = Midsummer

[3]**Seeding rates are based on drilled seed in organically managed fields. Seeding rates vary depending on crop use, timeliness of planting, method of seeding, weed pressure, soil conditions, seed size, and whether the crop is planted alone or in a mix.**

If you need help figuring out what seeding rate to use, please give us a call.
For most seed, use the smaller amount in mixes and the larger amount solo.
For corn, use the smaller amount for grain and the larger amount for silage.
For broadcasting, increase 20–25%.
For use in precision planters, decrease 10–50%.
For late planting, increase 20–50%.
For forage or weed control uses, increase 30–50%.

[4]**Nitrogen Fixation:** Rhizobial bacteria form symbiotic relationships specifically with the roots of leguminous crops to convert atmospheric nitrogen (which is unavailable to plants) to ammonia and nitrates (which are available to plants). Legumes can often furnish nearly all of their own nitrogen needs this way—exactly how much depends on the species, the soil structure, and weather conditions. If the crop is removed from the field, the fixed nitrogen is removed as well, with little or no residual added nitrogen remaining in the soil; however, if the crop is turned in and incorporated into the soil, the fixed nitrogen is added to the soil and is available in slow-release forms to the following crop. Legume species have varying capacity to fix atmospheric nitrogen.

[5]**Organic Matter, or Biomass:** These ratings reflect relative quantities of fibrous biomass. Succulent biomass makes a rapid contribution to available soil nutrients but does not contribute to the long-term carbon content of the soil. Fibrous biomass helps build humus, which improves soil texture and increases nutrient-holding capacity.



FARM SEED

See individual seed descriptions, alphabetized by common name, for more information about specific uses.

Cover Crops By adding sustainable sources of energy, such as soil amendments, organic fertilizers and cover crops that feed the soil, we enhance the health of our crops and ultimately ourselves. Green manures take up and store nutrients to be used by subsequent crops, suppress weeds, host beneficial insects, improve the structure and arability of the soil, and can even break up clay and hardpan. For cover crops, consider legumes (alfalfa, bell beans, clovers, peas, sunn hemp and vetch), grains (barley, Japanese millet, oats, rye and wheat), a few other special crops like BMR sorghum, buckwheat, mustard and forage radish. Check out our cover crop mixes **8004** B&B Summer Mix and **8073** Cover Crop Cocktail, **8062** Magic Carpet Mix, **8103** PVO Soil-Building Mix, and **8112** Vetch/Winter Rye Mix.

Perennial Pasture Intensive rotational grazing allows the farmer to raise more animals per acre and reduces parasite loads, while maximizing the pasture's potential as a carbon sink (see Joann Grohman's article "Time for a 180 on Cows and Climate" at mofga.org.) For best results, reseed or overseed your perennial pastures at least once every 5 years. Consider clovers, orchard grass, pasture mix, perennial ryegrass and chicory.

Perennial Hay Species for perennial hay are selected for hardiness, yield, ease of drying, palatability, and nutritional benefit. Begin your first cut as early as possible. Hay is at its prime when the plants are in the early flowering stage—while grass yields will increase after this point, quality and digestibility will decline sharply. An early first cut also increases the chance of getting that prime leafy second-cut hay in August or September. Consider alfalfa, Freedom red clover, orchard grass and timothy.

Annual Forage Producers seeking higher yields, top-quality feed and more rotation options in their field crops have begun turning more often to annual forages. These stands may be used for grazing, ensiling, baling or dry hay depending on your situation and equipment. Annual forages may also be used to help establish perennial hay or pasture, protecting the slower-growing perennials while allowing a harvest the first year. Consider BMR, chicory, mammoth red clover, Japanese and pearl millets, oats, peas and rye.

Grain for People There is a ready market for local food-grade grain suitable for brewing or baking; larger-scale growers are selling to specialty mills, while smaller growers are having grain custom-harvested and then milling their own "estate-grown" flours for sale at farmers markets. Many grains may even be grown in small gardens and processed with minimal investment for home use. Consider barley, buckwheat, field corn, oats, rye and wheat. Find more seed for specialty grains for human consumption on page 27 of the Seeds section.

Grain for Feed Grains are essential to growing hogs and poultry, whose single stomachs do not handle a high-fiber forage-based diet well. In ruminants, grains support high milk production, speed growth rates, and improve body condition, especially during the winter when energy demands are higher and forage quality lower. Consider barley, buckwheat, field corn, oats, peas and wheat.

Pollinator-Friendly Crops Planting flowering crops on "idle" ground is a gift to your bees. Choosing a number of different cover crops that bloom at different times of the season will ensure your bees have a constant source of food. Consider alfalfa, buckwheat, clovers, mustard, forage radish and vetch.

Lawn Seed You can't quite plant your entire yard to vegetables, herbs, flowers, berries and fruit trees, because then there would be no place for your reclining lawn chair and bocce tournaments. Try **8061** CR Lawn Mix and Dutch white clover.

Alfalfa - Organic *Medicago sativa* Perennial legume. Up to 3' high. This fragrant plant with beautiful purple flowers is a favorite for multi-year stands. Home gardeners like to cut it and add it to their compost piles. Herbalists consider it a valuable nutritive tonic. Excellent feed for all classes of livestock. Best suited to light well-drained soils; establishment and winter survival will be inhibited by heavy or wet soils because alfalfa's taprooted structure makes it susceptible to heaving. Delicate seedlings benefit from a nurse crop of barley or oats. Seed coated with Apex™ Green inoculant (OMRI-listed). Seed at 25#/acre, 15# in mixes, 1/2#/1000 sq ft.

As perennial hay: Typically interplanted with grass in organic systems. Often rotated with field corn on livestock farms (2–3 year alfalfa stand followed by 1–2 years of corn).

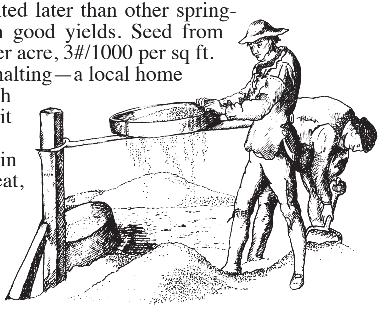
As cover crop: An excellent choice to build organic matter and nitrogen in fields that will be taken out of production for more than one year. Regular mowing will help deter quackgrass and annual weeds.

8001 ***A**: 0.5# (0#) for $9.75* ***B**: 2# for $25.00*
***C**: 10# for $110.00 ★* ***E**: 50# for $395.00 ★*

B&B Summer Mix Maybe "B&B" conjures images of a restful weekend with late-morning French toast on a sunny porch, or maybe you're a devotee of the fine digestif blend of Benedictine and brandy. Here, the Bs stand for buckwheat and BMR sorghum/sudangrass, plus we threw in enough Sunn Hemp to fix a little nitrogen (but not enough to ruin the alliteration). We've reformulated our popular **cover crop** blend to reliably winter-kill. A first-rate smother crop and biomass builder. Perfect for areas where a cash crop has failed or weeds have taken over. Loves heat. Plant in June or July and mow when the buckwheat is in full flower. Till after the residue has broken down some if you want to plant a late-season crop, or mow periodically through the fall. The stubble will all die back over the winter and you will enjoy weed-free high-tilth soil next spring. Plant at 75#/acre or 2#/1000 sq ft.

8004 ***A**: 0.5# (0#) for $6.00* ***B**: 2# for $11.00*
***C**: 10# for $40.00* ***E**: 50# for $135.00 ★*

Barley, Robust - Organic *Hordeum vulgare* Annual spring grain. Up to 3' high. Moderately frost-hardy. A widely grown 6-row barley with resistance to spot blotch. Tolerates drought and alkaline or heavy soils. Does not tolerate wet or acidic soils. May be planted later than other spring-sown small grains and maintain good yields. Seed from early May to mid-June at 100# per acre, 3#/1000 per sq ft.



As food grain: Suitable for malting—a local home brewer told us "when brewed with Cascade hops from Fedco Trees, it made excellent ale."

As feed grain: More reliable in Maine's climate than corn or wheat, with nearly as much feed value, and better feed value than oats.

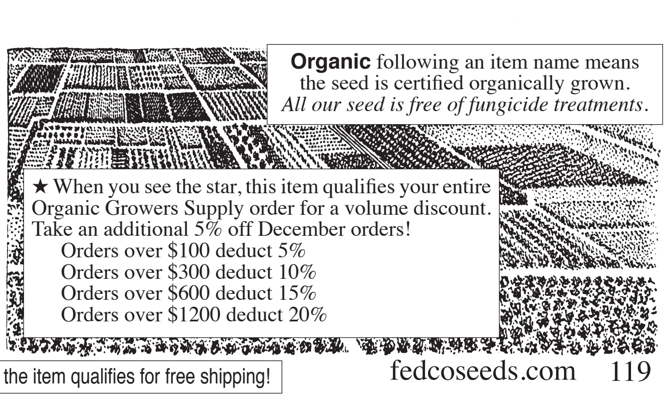
8007 ***B**: 2# for $5.50*
***C**: 10# for $19.50*
***E**: 50# for $75.00*

Bell Beans - Organic *Vicia faba* Annual or winter annual legume. Up to 5' high. Frost-hardy. Bell beans (aka small-seeded fava beans) are like **8133** Sunn Hemp's tough cousin—the one with the full sleeve tattoos who hiked the Appalachian trail in the winter. Like Sunn Hemp, bell beans boast unusual versatility—by fixing atmospheric nitrogen and building generous amounts of carbonaceous biomass. But while Sunn Hemp is a tropical beauty who crumples at the first sign of frost, hardy bell beans will happily sprout in half-frozen soil and may keep growing even after the first snows. Stiff-stalked plants with fleshy glabrous leaves and pretty purple-tinged white flowers. Tolerates a wide range of soil conditions, though sensitive to heat and drought at flowering. Raw seed; use with **8155** Garden Combo or **8161** Field Pea/Vetch inoculant. Seed 2" deep at 150-200#/acre, 5#/1000 sq ft.

As cover crop: Plant in very early spring to mow and incorporate at flowering, or in mid-fall to protect soil from fall rains before they succumb to cold at 10–15˚F.

As feed grain: In temperate climates with long cool springs or warmer winters than we have in Maine, bell beans are a great alternative to peas or soy; plant in late fall for harvest in mid-spring. They don't perform well as a grain crop in Maine because they won't survive the winter and if spring-planted tend to drop their blossoms without setting pods in temperatures over 70˚.

8010 ***B**: 2# for $10.75* ***C**: 10# for $29.75* ***E**: 50# for $105.00 ★*



Organic following an item name means the seed is certified organically grown.
All our seed is free of fungicide treatments.

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

BMR Sorghum/Sudangrass - Organic *Sorghum* x *drummondii* Annual grass. Up to 6' high. Will survive light frost. A vigorous, competitive and adaptable hybrid annual that likes heat and high fertility. Grows best in warm weather when other grasses slow down. Check website to confirm availability of organic seed; when necessary, we will offer conventional seed online instead. Seed at 40–80#/acre, 2#/1000 sq ft when soil is thoroughly warmed.

As cover crop: Unsurpassed weed suppression and enormous amounts of organic matter.

As annual forage: BMR can outyield corn as a silage crop, especially when conditions are either too wet or too dry for optimum corn performance. Fields planted to BMR will suffer less soil erosion than fields planted to corn. Cut at 3–4' high for best quality. BMR silage tests at about 15% crude protein, with better fiber digestibility and only slightly lower total energy than corn. Tolerates mowing and can be used for hay, though it is high in moisture and must be conditioned to dry down properly. Severe drought and frost can increase prussic acid content to dangerous levels: do not feed to livestock under these conditions.

8013 ***B****: 2# for $12.00* ***C****: 10# for $49.00* ***E****: 50# for $155.00 ★*

Buckwheat, Common - Organic *Fagopyrum esculentum* Annual broadleaf. Up to 4' high. Frost-sensitive. Large-seeded Japanese buckwheat with short maturity will tolerate most conditions, including soil pH as low 4.8. Bees like its abundant nectar. As a cover crop, seed at 80–100#/acre, 3#/1000 sq ft. As a grain crop, seed at 40–60#/acre, 1#/1000 sq ft.

As cover crop: Excellent smother crop. Short maturity allows 2–3 crops per season. Should be mowed short or tilled in before it sets seeds. Responds well to fertility, holding it for subsequent crops. Makes calcium and phosphorus available for the next crop. Loosens clay soils. Juicy low-cellulose plant does not help build organic matter.

As food grain: Buckwheat is indeterminate and will have mature seeds, green seeds and flowers simultaneously. When a majority of seeds are mature, scythe or swath the crop and allow to field-dry for as long as possible before harvesting with a pickup head or threshing by hand. Buckwheat seeds are about 20% hull, which is removed during commercial milling, but the whole seed may be ground for flour if you don't mind a coarser texture and some black flecks.

As feed grain: High levels of lysine compared to other non-legumes can make buckwheat a valuable part of the ration. High in fiber and unsaturated fats. Contains a compound, fagopyrin, that can cause photosensitivity in light-skinned animals: restrict to less than 30% of the diet.

8019 ***B****: 2# for $7.75* ***C****: 10# for $29.75* ***E****: 50# for $100.00 ★*

Buckwheat in the shock.

Forage Chicory *Cichorium intybus* Perennial broadleaf. Up to 18" (flower stalks up to 6'). Tap-rooted plant with bright blue flowers suited to well-drained moderately acidic soils. Well-managed stands may persist 5 years or longer, but also valuable in annual stands for pasture or green chop. Chicory is established best by drilling 1/2" deep or broadcasting, then cultipacking, into a well-prepared seedbed; it may also be no-till drilled or frost-seeded on established pastures early in the season. Begin grazing when the plant is 8–10" high, and graze down to 1–2". Seed at 8#/acre alone, or 3#/acre in mixes, 1/4#/1000 sq ft.

As annual or perennial forage: Very high digestibility and protein levels up to 50% higher than alfalfa. Digestibility is reduced if plants are allowed to bolt, but the flowers are very attractive! Research shows reduced parasite loads in animals fed or pastured on chicory.

8022 ***A****: 0.5# (0#) for $9.00* ***B****: 2# for $30.00*
C*: 10# for $100.00 ★* ***D****: 25# for $200.00 ★*

CLOVER

Trifolium spp. (except Yellow Sweet Clover, *Melilotus officinalis*)

The *Trifolium* genus is home to more than 300 species, most of which are native to the northern hemisphere (a few pop up in Africa and South America). Clover is versatile, performs well in Maine's cool humid climate and acidic soils, fixes atmospheric nitrogen, and attracts pollinators—what more could you ask for? The taller red clovers are better hay plants, as they have a more erect habit and greater biomass, and they dry more easily. Red clover blossoms, fresh or dried, make one of our favorite teas. White clovers perform better in pastures and lawns, as they tolerate close mowing (or nibbling) and heavy traffic. No matter what kind of clover you choose, be sure to plant plenty to increase your chances of finding those lucky four-lobed specimens: botanists estimate 1 in 10,000 clover leaves exhibit this trait!

Clover may be planted from late winter through early fall. Seedlings are slow to establish and will benefit from a nurse crop of oats. If a crop of annual weeds comes up with your clover, all is not lost: keep the plot regularly mowed and by midseason the clover will have outcompeted the weeds. See our website for additional information about each variety. Most clovers are pre-inoculated, clay-coated with an OMRI-approved coating.

Crimson Clover *T. incarnatum* Tender biennial legume. Up to 18". Vigorous clover for cover cropping and bee forage. Stunning crimson spikes make good cutflowers. Biennial, often but not always winter-killed in Maine. Raw seed; use with **8158** Alfalfa/Clover Inoculant. Seed at 25–50#/acre, 1–2#/1000 sq ft.

8025 ***A****: 0.5# (0#) for $5.50* ***B****: 2# for $8.00*
C*: 10# for $30.00* ***E****: 50# for $90.00*

Freedom Red Clover *T. pratense* Short-lived perennial legume. Up to 24". High-yielding red hay clover with glabrous stems for fast dry-down. Seed coated with Organic Nitro-Coat® inoculant (OMRI-listed). Seed at 10#/acre alone, 5#/acre in mixes, 1/2#/1000 sq ft.

8028 ***A****: 0.5# (0#) for $9.25* ***B****: 2# for $25.00*
C*: 10# for $110.00 ★* ***D****: 25# for $185.00 ★*

Mammoth Red Clover - Organic *T. p.* Biennial legume. Up to 36". Vigorous red clover for cover cropping or grazing. Seed coated with Pre-Vail™ inoculant (OMRI-listed). Seed early at 15–20#/acre alone, 5–10#/acre in mixes, 1/2# per 1000 sq ft.

8031 ***A****: 0.5# (0#) for $7.75* ***B****: 2# for $17.50*
C*: 10# for $75.00* ***E****: 50# for $250.00 ★*

Medium Red Clover - Organic *T. p.* Short-lived perennial legume. Up to 24". Red clover for underseeding or grazing. Seed coated with Surestand Hydrogreen inoculant (OMRI-listed). Seed 10–20#/acre, 1/2# per 1000 sq ft.

8034 ***A****: 0.5# (0#) for $7.75* ***B****: 2# for $17.50*
C*: 10# for $75.00* ***E****: 50# for $260.00 ★*

Alice White Clover *T. repens* Perennial legume. Up to 12". Vigorous large-leafed white clover. Readily self-seeds. Seed coated with Organic Nitro-Coat® inoculant (OMRI-listed). Frost-seed at 4–5#/acre, or 2–3# when mixed with grasses, 1/4#/1000 sq ft.

8037 ***A****: 0.5# (0#) for $10.00* ***B****: 2# for $25.00*
C*: 10# for $115.00 ★* ***D****: 25# for $200.00 ★*

Dutch White Clover *T. r.* Perennial legume. Up to 6". The lowest-growing white clover. Recommended for lawns and living mulch. Shade-tolerant. Seed coated with Pre-Vail™ inoculant (OMRI-listed). Seed at 5–10#/acre, 1/4#/1000 sq ft.

8040 ***A****: 0.5# (0#) for $8.75* ***B****: 2# for $19.00*
C*: 10# for $90.00* ***E****: 50# for $325.00 ★*

Rivendell White Clover - Organic *T. r.* Perennial legume. Up to 9". Small-leafed white clover establishes quickly and withstands traffic and close mowing. Seed coated with Apex™ Green inoculant (OMRI-listed). Seed early at 5–10#/acre, 1/4# per 1000 sq ft.

8043 ***A****: 0.5# (0#) for $12.25* ***B****: 2# for $40.00*
C*: 10# for $150.00 ★* ***D****: 25# for $350.00 ★*

Yellow Sweet Clover - Organic *Melilotus officinalis* Biennial legume. Up to 6'. Vigorous taprooted thick succulent clover for cover cropping and bee forage. Seed coated with Pre-Vail™ inoculant (OMRI-listed). Seed at 10–20#/acre, 1/2#/1000 sq ft.

8046 ***A****: 0.5# (0#) for $6.75* ***B****: 2# for $13.00*
C*: 10# for $57.50* ***E****: 50# for $185.00 ★*

Wapsie Valley Corn - Organic *Zea mays* Annual grass. Up to 9'. Frost-sensitive. 85 days to mature grain. Open-pollinated dent corn suitable for forage or grain. This heirloom variety dates back to 1850. Produces both coppery red and dark yellow ears. A favorite with Maine's organic dairy farmers, from Two Loons Farm in South China to Sheepscot Valley Farm in Whitefield. We tried other corn varieties and Wapsie bested all the competition in our sales numbers. Plant as soon as the soil is warm (at least 60°). While corn will establish poorly in cool soil, late planting decreases yields. Corn requires high fertility (plant after legumes in your crop rotation) and does not like to have wet feet. It competes poorly with weeds and requires frequent cultivation to perform well. Overseed white clover or annual ryegrass after the final cultivation to reduce the risk of erosion and discourage late-germinating weeds.

Corn has gotten a bad reputation because of the environmental damage caused by millions of acres of heavily sprayed corn monocropped in middle America, and the damage to public health caused by out-of-control corn subsidies. But you can grow corn responsibly in an organic rotation; in moderation it is a valuable part of the human diet; and it can be a boon to livestock growers seeking to meet their animals energy needs on limited acreage.

As food: Starchy dent corn grinds easily to a yellow cornmeal flecked with maroon. Also great nixtamalized to make masa for tortillas or tamales. A surprise star in OGS staffer John Paul Rietz's cornbread tasting, even besting Floriani Flint corn. Seed at 15#/acre, 1/2#/1000 sq ft.

As feed: Wapsie is a high-yielding and reliable silage corn. For grain, open-pollinated corn has 25% more protein than hybrid corn. Wapsie grain has tested as high as 10.75%. Seed at 20#/acre.

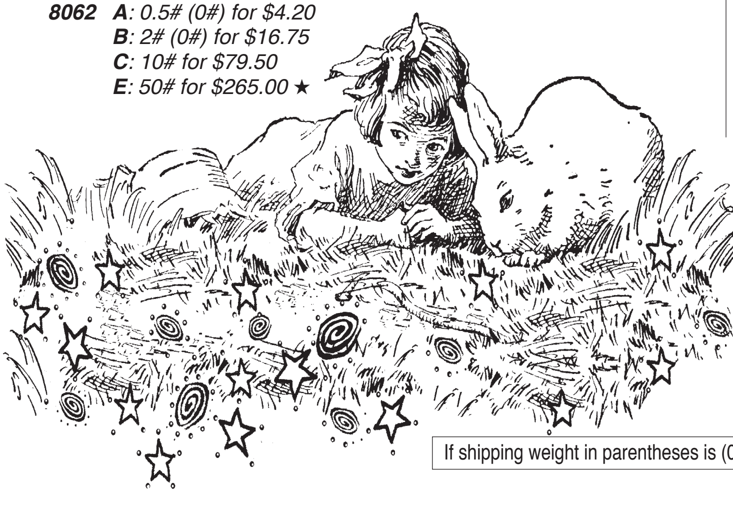
8058 ***B****: 2# for $15.00* ***C****: 10# for $55.00* ***E****: 50# for $185.00* ★

Grass Seed: CR Lawn Mix All-purpose grass-seed mix for the Northeast, named for Fedco's belovedly idiosyncratic founder. Also called OVN (Orchard-Vineyard-Nursery) Mix because it makes a great understory for perennial woody crops. 50% bluegrass, 30% red fescue, 15% perennial ryegrass and 5% white clover. Good for a range of conditions, full sun to partial shade. Bluegrass does well in full sun, red fescue in shade. Ryegrass provides quick germination and good color while the other grasses get established; clover adds nitrogen and interest for bees. Seed at 100–150#/acre, 3–4#/1000 sq ft.

8061 ***B****: 2# for $15.50* ***C****: 10# for $69.00* ***E****: 50# for $245.00* ★

Magic Carpet Mix You told us your dreams, and we designed this ten-way clover-heavy mix as a soil-building **living mulch** for use under tall-growing competitive crops. Could also be used for other crops if kept neatly trimmed. Suitable in raised beds, containers and high tunnels. Expect a lush carpet of nitrogen-fixing legumes studded with grasses and forbs to contribute biomass and support microbial diversity in your soil. No need for Aladdin's lamp: all components have some degree of shade tolerance. May be used for a single season, however most components are perennial and the remainder will often self-sow. Whether you are growing tomatoes or "tomatoes," take this mix for a ride. Seed at 25#/acre, 1/2# per 1000 sq ft.

8062 ***A****: 0.5# (0#) for $4.20*
B*: 2# (0#) for $16.75*
C*: 10# for $79.50*
E*: 50# for $265.00* ★



Millet, Japanese - Organic *Echinochloa frumentacea* Annual grass. Up to 5'. Frost sensitive. Vigorous and versatile! Tolerates waterlogged soil and low fertility. Prefers heat, but tolerates cool conditions better than BMR or other varieties of millet. Check website to confirm availability of organic seed; when necessary, we will offer conventional seed online instead. Seed when soil is 60° or warmer at 25–50#/acre, 1#/1000 sq ft.

As cover crop: Very good smother crop with extensive root system to protect soils from erosion. Produces high levels of organic matter and holds available nutrients for the following crop.

As annual forage: Rick Kersbergen at UMaine Cooperative Extension recommends Japanese millet for summer grazing. Fast growing but yields less than BMR or Pearl Millet. Does not develop problems with prussic acid after frosts, but can be toxic to horses. Regrows quickly after grazing or mowing. For dry hay, mow before heading, as the thick stems are difficult to dry down. Similar protein levels to BMR, and its fine-textured leaves are highly palatable.

8067 ***B****: 2# for $8.75*
C*: 10# for $35.00*
E*: 50# for $105.00* ★

Millet, Pearl *Pennisetum glaucum* Annual grass. Up to 6'. Frost sensitive. Taller than Japanese millet but with a tighter bunching habit. Tolerates drought and sandy soils. Seed when soil is 60° or warmer at 25–50#/acre, 1#/1000 sq ft.

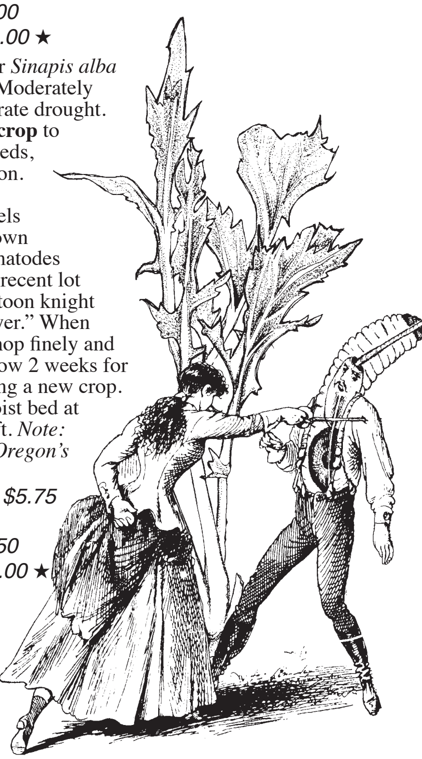
As a cover crop: Somewhat slower to establish than Japanese millet, and the bunching habit makes it less competitive with weeds, but if organic matter is your goal then pearl millet has a higher biomass production potential over the course of the season.

As annual forage: More productive and more digestible than Japanese millet. Suitable for grazing, silage and dry hay. Harvest before boot stage, at 18–24" high, and leave ample stubble to ensure vigorous regrowth.

8068 ***B****: 2# for $8.00*
C*: 10# for $31.00*
E*: 50# for $100.00* ★

Mustard *Brassica juncea* or *Sinapis alba* Annual broadleaf. Up to 5'. Moderately frost resistant. Does not tolerate drought. Best as a fall-planted **cover crop** to retain nutrients, suppress weeds, and improve water penetration. Produces large amounts of biomass containing high levels of glucosinates that break down into compounds toxic to nematodes and soil-borne pathogens. A recent lot came in bags featuring a cartoon knight dubbed "The Nematode Slayer." When plants achieve full flower, chop finely and incorporate into the soil. Allow 2 weeks for decomposition before planting a new crop. Plant 1½" deep in a firm moist bed at 15–25#/acre, 1–2#/1000 sq ft. *Note: We cannot ship this item to Oregon's Willamette Valley.*

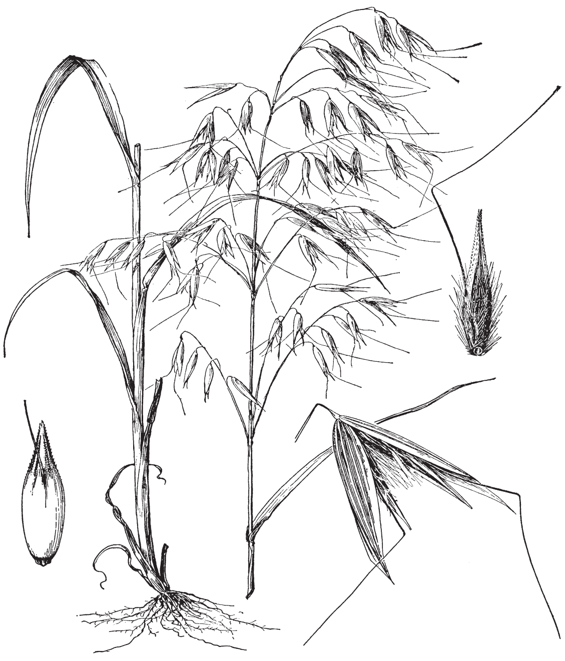
8070 ***A****: 0.5# (0#) for $5.75*
B*: 2# for $9.75*
C*: 10# for $37.50*
E*: 50# for $110.00* ★



NOFA Cover Crop Cocktail - Organic Complex **cover crop** blends are trending on the organic ag scene; so what's all the buzz about? Just as a well-mixed cocktail balances a variety of flavor profiles to create something that is greater than the sum of its parts, planting a well-designed blend of multiple cover crops can accomplish more than planting a single species. With annuals and biennials, grasses and legumes and broadleafs, and roots of all shapes and sizes, this blend mimics natural diversity and encourages a flourishing and balanced microbial population. Another advantage of diverse blends is that if your field conditions are not conducive to one or two species in the blend, the others will help take up the slack. Best for long rotations: plant in August or September and allow to grow to midsummer of next season. For shorter windows, try B&B Summer Mix or Vetch/Winter Rye Mix instead. Eight components including peas, winter grains, spring grains, clover, tillage radish and hairy vetch. Seed at 50–75#/acre or 1–2#/1000 sq ft.

8073 ***B****: 2# for $11.75*
C*: 10# for $45.00*
E*: 50# for $145.00* ★

If shipping weight in parentheses is (0#), the item qualifies for free shipping!



OATS *Avena* spp.

Oats are a real workhorse of a cover crop. They are inexpensive to sow, they're not fussy about their soil, they build generous amounts of carbonaceous biomass, they're competitive with weeds, they love cool weather but tolerate warm weather, they get along well with legumes like peas and clover in mixes, and they die over the winter (at least in New England—they're hardy to 15˚) so they don't cause the spring headache that rye does.

As if their prowess as a cover crop weren't enough, the grain may be used as food or feed, and oat straw makes some of the finest, softest mulch you'll ever have the pleasure to kneel on. Try planting oats in early August and then planting your garlic into the living oats around mid-October—the oats will die over the winter and your garlic beds will be already mulched come spring. And there's more! Herbalists favor milky oats (oat heads harvested when they are still green and the kernels exude a milky substance when squeezed) as a gentle restorative tonic.

Everleaf Oats - Organic *A. sativa* Annual grass. Up to 5'. Moderately frost resistant. A late-heading vigorous forage oat that has gained a cult following among dairy farmers and veggie growers alike. More heat-tolerant than common oats. Check website to confirm availability of organic seed; when necessary, we will offer conventional seed online instead. Seed in springtime at 100#/acre, 3#/1000 sq ft.

As cover crop: Exceptionally vigorous seedlings and lush leafy growth make this oat variety especially competitive with weeds. Faster seedling growth than BMR or millet, though these crops will eventually outstrip Everleaf in height. Will build more biomass than common oats.

As forage: If cut in the early boot stage (when the flower head is only just detectable inside the leaf sheath) the hay can achieve protein levels of 19% and the plant will regrow for a second crop. Everleaf oats harvested at the soft-dough stage (when the kernel is developing but still soft enough to cut with a fingernail) achieved dry-matter yields of nearly 4 tons per acre in a 2010 University of Vermont trial. Makes excellent bedding straw. Also suitable for grazing.

8076* *B*: *2# for $7.75* *C*: *10# for $29.75* *D*: *32# for $64.00

Hulless Oats - Organic *A. nuda* Annual grass. Up to 4'. Moderately frost resistant. Most oats have a clinging hull that requires industrial-grade milling to render them suitable for human consumption. Hulless oats are not, in fact, hulless, but as in wheat the hull sheds easily during the normal threshing process; for best results, delay harvest until the crop is fully mature. May be used as a cover crop like other oats, but hulless varieties tend to be somewhat less vigorous than common oats. Plant in early spring at 100#/acre, 3#/1000 sq ft.

As food grain: To cook, soak in water: what little hull remains will float.

As feed grain: The less-substantial hull lowers the crude fiber levels and improves digestiblity compared to common oats. Higher in protein than other small grains, but not higher in lysine.

8082* *B*: *2# for $6.00* *C*: *10# for $22.50* *E*: *48# for $70.00

Common Oats - Organic *A. s.* Annual grass. Up to 4'. Moderately frost resistant. A solid all-purpose VNS (Variety Not Stated) oat. As cover crop, seed at 100–200#/acre. For grain, seed early at 120–150#/acre, 3–4#/1000 sq ft.

As cover crop: Probably the most bang for your buck you can get in the world of cover crops. Offers high biomass and excellent weed competition. Tolerates a wide range of weather and soil conditions.

As feed grain: Excellent feed for cows and horses; too high in fiber for hogs. Seed at 100–150#/acre, 3#/1000 sq ft.

8085* *B*: *2# for $5.25* *C*: *10# for $18.00* *E*: *50# for $70.00

Orchard Grass - Organic *Dactylis glomerata* Perennial grass. Up to 18". Long-lived vigorous grass can be established in spring, summer, or by frost-seeding in late winter. Tall leafy plants grow rapidly even in poor soils, tolerate moderately drained soils, heat, drought and shade. Seed at 10–15#/acre, or 5–6# with 8–12# of alfalfa or red clover per acre.

As perennial pasture: Grazing will help overcome its tendency to form coarse bunches. Provides good warm-weather growth.

As perennial hay: Bunching habit will be reduced if sown with red clover or alfalfa. More shade-tolerant than timothy. Makes a leafy palatable hay that is preferred for alpacas and horses.

8088* *B*: *2# for $29.50
***C*: *10# for $120.00* ★**
***E*: *44# for $395.00* ★**

Pasture Mix - Organic 30% perennial rye, 35% endophyte-free tall fescue, 15% orchard grass, 10% timothy, 10% Rivendell white clover (pre-inoculated). **Perennial pasture** mix well suited to Maine and other areas having our variable weather and temperatures. Provides season-long regrowth and good grazing. Plant at 40–50#/acre, 2#/1000 sq ft.

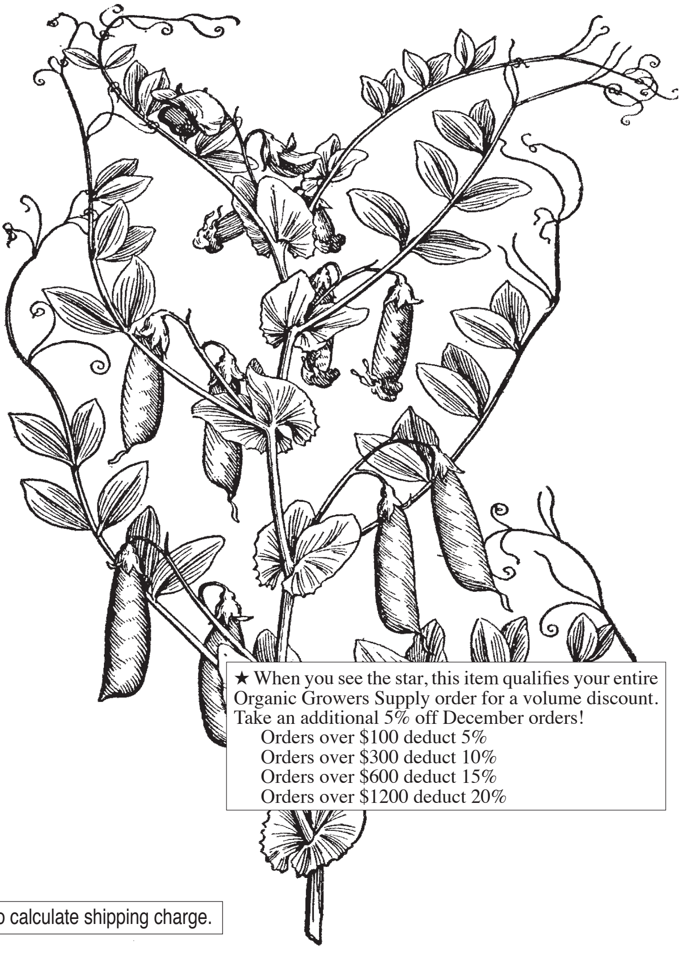
8094* *B*: *2# for $23.75
***C*: *10# for $110.00* ★**
***E*: *50# for $360.00* ★**

Peas, Field - Organic *Pisum sativum* var. *arvense* Annual legume. Up to 40". Also called **Forage Peas**. Moderately frost tolerant. Likes cool moist conditions. Will grow in most soil types but prefers well-drained loams. It has come to our attention that some customers are purchasing our field peas for pea-shoot production: not all of the varieties we purchase are suitable for this, so please let us know if you have special plans for your pea seed and we'll do our best to accommodate! Raw seed: use with **8155** Garden Combo Inoculant or **8161** Field Pea/Vetch Inoculant. For cover crop, seed at 100–200#/acre, 2#/1000 sq ft. For forage, seed early in the season, alone at 200#/acre, 5#/1000 sq ft, or 100#/acre, 2#/1000 sq ft, with oats or barley at 50#/acre, 3#/1000 sq ft.

As cover crop: A weed-smothering workhorse soil builder. Sow alone or with a nurse crop such as oats to help it stand.

As annual forage: Peas have excellent palatability and are highly digestible. Hanne Tierney of Cornerstone Farm conducted a 2009 SARE trial in which she reduced by 50% the grain fed out to hogs pastured on a barley and field-pea mix; the pastured hogs achieved an average slaughter weight not significantly different from the control group, although there was greater variation. Some potential for dry hay as well, though filled pods can be difficult to dry down. Peas may be seeded alone, but a companion crop of small grains will help to prevent lodging.

8097* *B*: *2# for $5.75* *C*: *10# for $19.50* *E*: *50# for $74.75



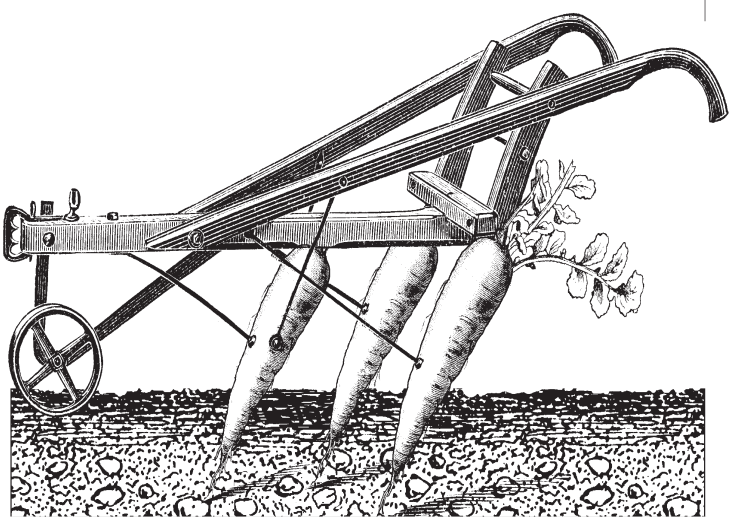
★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

PVO Soil-Building Seed Mix - Organic 71% field peas, 15% common oats, 14% hairy vetch. A superior soil-building **cover crop** seed mix. For springtime planting: allow for 60–90 days of growth. The oats come up first and are pulled down by the peas, which are eventually pulled down by the smothering vetch. Weeds don't stand a chance in that jungle. 4" mat of vegetation should be disked or mowed and incorporated in autumn. Seed at 150–200#/acre, 5#/1000 sq ft.

*8103 **B**: 2# for $8.00 **C**: 10# for $26.50 **E**: 50# for $105.00 ★*

Radish, Tillage - Organic *Raphanus sativus* var. *niger* Annual broadleaf. Up to 14". Moderately frost resistant. A **cover crop** Daikon radish bred for improved taproot performance. Penetrates hardpan and loosens soil down to 30" or beyond. Excellent scavenger crop: takes up available nutrients in the soil and prevents nutrient losses to leaching or runoff. Germinates quickly. Suppresses weeds if planted thickly. Winterkill occurs when several consecutive nights are in the low 20s. Leave plants in the ground all winter and into spring: roots decompose leaving large holes that fill with rainwater, eliminating runoff and improving soil drainage. Decomposed root and leaf matter release nutrients and increase microbial activity in the soil, contributing to increased yields in crops that follow. Plant in early September for maximum benefit. Can be planted as late as October in mid-Atlantic states. Do not plant in spring: the plants will bolt before they form taproots. Drill at 5–10#/acre or broadcast at 10–15#/acre, 1/4#/1000 sq ft. **PVP**. *Note: We cannot ship this to the Willamette Valley in Oregon.*

*8106 **A**: 0.5# (0#) for $8.75 **B**: 2# for $21.00*
***C**: 10# for $100.00 ★ **E**: 50# for $350.00 ★*



Using Cover Crops to Troubleshoot in the Garden

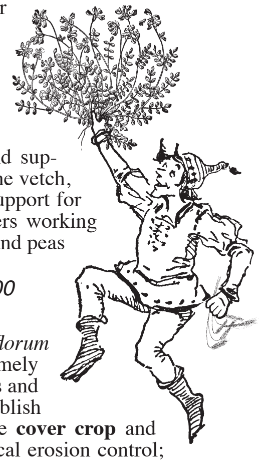
Problem	Easy Cover-Crop Solutions
Poor soil drainage or hardpan	Tillage Radish bores drainage holes into the soil with its powerful taproot.
Low organic matter	BMR Sorghum/Sudangrass produces more biomass than any other cover crop. It is frost-sensitive. Choose cold-tolerant Everleaf Oats for fall or spring planting.
Low soil nitrogen	Alfalfa and Yellow Sweet Clover are the most capable fixers of atmospheric nitrogen among all the legumes. Be sure to inoculate your seed!
High weed population	Winter Rye has vigorous growth and is a strong allelopath on small weed seeds. Buckwheat has vigorous seedling growth and competes well against warm-season weeds.
Soil erosion	Annual Ryegrass quickly forms a dense root mat that holds soil in place.
Poor pollination	Dutch White Clover can bloom among your crops all season to feed and attract pollinators.
Soil-borne fungal disease	Mustard residues release isothiocyanates, which may inhibit the growth of fusarium and other soil-borne fungi.
Root-knot nematodes	Sunn Hemp roots exude natural nematicides that can significantly reduce nematode populations in the short term.
Nutrient leaching	Tillage Radish scavenges unused soluble nitrogen from deep in the soil and holds it for later crops.

Rye, Winter - Organic *Secale cereale* Winter annual grass. Up to 5'. Extremely frost hardy, adaptable and competitive. For cover crop, seed at 100–200#/acre, 3–5#/1000 sq ft. For grain, seed in late September or early October at 100–125#/acre, 3#/1000 sq ft.

As cover crop: The most popular winter cover in the Northeast. Deep extensive roots help prevent compaction and improve soil tilth. Turn under early in spring before it gets out of hand. Vigorous growth is best controlled with mechanical tillage: if you are working with hand tools, we recommend oats for fall planting instead. Decomposed rye residue exudes allelopathic compounds that inhibit weed growth; may also inhibit germination and growth of subsequent crops, so incorporate into soil at least 3 weeks before planting. This affects direct-seeded crops with small seeds more than large-seeded crops and transplants.

As food grain: Threshes easily and produces a flour suitable for blending with wheat in breads. Matures earlier than winter wheat. Susceptible to ergot contamination, so exercise caution and have grain tested before consuming: hallucinations from ergot poisoning are believed to have resulted in the Salem witch trials.

*8109 **B**: 2# for $5.00 **C**: 10# for $16.50 **E**: 50# for $55.00*



Hairy Vetch/Winter Rye Mix - Organic 78% rye and 22% vetch. Superb **cover crop** mix for fall planting where mechanical tillage is available in the spring. Excellent choice for a field that will not be planted the following spring. Mow after flowering to kill the plants, then incorporate by tilling, and allow 3–4 weeks for the rye to decompose before replanting. Produces abundant biomass, adds nitrogen to the soil and suppresses weeds. The rye acts as a nurse crop for the vetch, protecting it from frost damage and providing support for the vines, making mowing much easier. Growers working with hand tools should consider a blend of oats and peas instead. Seed at 75–100#/acre, 2–3#/1000 sq ft.

*8112 **B**: 2# for $7.00 **C**: 10# for $30.00*
***E**: 50# for $100.00 ★*

Ryegrass, Annual - Organic *Lolium multiflorum* Annual or winter annual grass. Up to 4'. Extremely frost hardy. Widely adaptable to a variety of soils and to all but the hottest climates. Annual rye will establish quickly in cool wet weather, providing a dense **cover crop** and outcompeting weeds. Seed heavily for economical erosion control; seed thinly as a good nurse crop when establishing perennial stands for pasture or lawn. Dense fibrous root systems withstand temporary flooding and are effective at holding soil and improving tilth. Should be kept mowed if you wish to prevent reseeding. Does not reliably winterkill. A good choice for a first cover crop when converting forest land to cropland; it isn't picky about where it establishes, and it effectively "retrains" the soil's microbial population to foster annual plants instead of woody growth. Seed at 15–50#/acre, 1–2#/1000 sq ft.

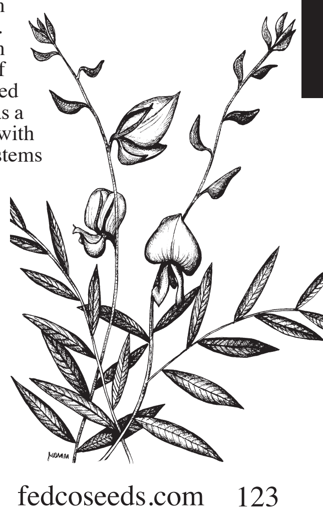
*8121 **B**: 2# for $10.00 **C**: 10# for $45.00 **E**: 50# for $150.00 ★*

Ryegrass, Perennial - Organic *L. perenne* Short-lived perennial grass. Up to 2'. Often used in grass seed mixtures. Extremely palatable forage grass with good early spring and fall growth in the **perennial pasture**; slows in the heat of summer. Germinates quickly and grows rapidly, suppressing weeds and allowing slower-growing companions to establish themselves. Perennial ryegrass holds up under heavy traffic and has good insect and disease resistance. Seed at 30–60#/acre, 2#/1000 sq ft.

*8124 **B**: 2# for $25.00 **C**: 10# for $100.00 ★*
***E**: 50# for $350.00 ★*

Sunn Hemp *Crotalaria juncea* Annual legume. Up to 6'. Frost sensitive. This rock star **cover crop** builds organic matter, fixes atmospheric nitrogen, controls harmful nematodes, and still finds time to be beautiful. Grows vigorously in good conditions, but is unlikely to reach its full size potential up here in the tundra. Effectively shades out weeds. In just 60 days it can produce more than 5000#/acre biomass and fix 140#/acre of nitrogen. At this stage it will have just started producing its lovely yellow flowers. Used as a fiber crop in India since prehistoric times; with enough heat, plants can grow 6' high with stems 2" thick! Some varieties are suitable for livestock forage, but our seed comes to us "variety not stated" so we do not recommend it for that purpose. Tolerates dry conditions. Raw seed; inoculate with **8155** Guard-N Garden Combo Inoculant. Seed after soil reaches 60°, but before Aug. 15, 30–50#/acre, 1–2#/1000 sq ft.

*8133 **A**: 0.5# (0#) for $6.25*
***B**: 2# for $12.50*
***C**: 10# for $45.00*
***E**: 50# for $150.00 ★*



Timothy - Organic *Phleum pratense* Perennial grass. Up to 3'. A popular **perennial hay** species that produces good yields, resists lodging and is easily cut and cured. Harvest early, in the boot stage, to avoid stemmy hay. Leave plenty of stubble; timothy stores its energy reserves for regrowth in a corm at the base of the stem, which may be damaged by close cutting or heavy grazing. Very winter hardy. Best adapted to clay or loam soils with lots of moisture. Does not tolerate heat or drought. In the fall, seed alone or with winter wheat; in spring, seed with red clover or alfalfa. Grows to $3^1/_2$'. Seed at a rate of 12–15#/acre alone or 10#/acre when mixed, $^1/_2$#/1000 sq ft.

***8136 B**: 2# for $15.00 **C**: 10# for $60.00 **E**: 50# for $180.00* ★

Vetch, Hairy - Organic *Vicia villosa* subsp. *villosa* Annual or winter annual legume. Up to 2' high; vines up to 8' long. Moderately frost resistant. Vigorous **cover crop** generates copious amounts of organic matter. Excellent nitrogen fixation. Its vigor can create problems, especially in the home garden: the tangled vines can clog even large mowers. Later planting allows for better control. Sometimes it will overwinter in Maine, sometimes it will die back: you have to be prepared to deal with it in the spring. Use a flail mower or scythe to cut it back in fall and incorporate the stubble in the spring before the regrowth becomes unmanageable. Tolerates acidic soils and low fertility, but not poor drainage. Raw seed; use with **8161** Field Pea/Vetch Inoculant. Seed at 20-30#/acre, 1–2#/1000 sq ft.

***8139 B**: 2# for $15.00*
***C**: 10# for $65.00*
***E**: 50# for $215.00* ★

WHEAT

Triticum aestivum

Most modern wheats are broadly divided into categories by color (red or white), protein content (hard or soft), and by planting season (winter or spring). “Red” and “white” refer to the color of the kernel, which doesn’t necessarily translate into the color of the flour, although red wheats tend to have a darker-colored bran and white wheats tend to have a sweeter flavor. “Hard” wheat is a high-protein wheat (typically 13–15% protein) that is ideal for bread-baking; “soft” wheat is a low-protein wheat (typically 10–11% protein) that is best for tender-crumbed pastries. Winter wheat is planted in the fall, around first frost or up to 3 weeks or so before. It grows several inches in the fall, goes dormant for the winter, sprouts early in the spring and is ready for harvest by mid-August in Maine. Spring wheat is planted in early to mid-spring and is harvested in the fall of the same year. Winter wheats tend to produce yields 25–50% higher than spring wheats and compete better with weeds, but hard spring wheats have the best potential for high protein content.

Red Fife Spring Wheat - Organic Annual grain. Up to 5'. Moderately frost resistant. Hard red heritage spring wheat developed in the 1840s by David Fife at his Peterborough Farm in Upper Canada, now Ontario. The most widely grown Canadian wheat in the second half of the 19th c., interest in Red Fife is enjoying a well-deserved rebirth. Greatly admired for its rich flavor. Requires fewer inputs than modern varieties. The seed has remarkable genetic diversity and adapts to a wide range of growing conditions. Less determinate than modern varieties; Henry Perkins of Bull Ridge Farm in Albion recommends harvesting early and investing in good drying equipment. Plant at 100–125#/acre, 3–4#/1000 sq ft.

***8145 B**: 2# for $8.00 **C**: 10# for $30.00 **E**: 50# for $120.00* ★

Medina Winter Wheat - Organic Winter annual grain. Up to 4'. Extremely frost hardy. Soft white winter wheat suitable for feed or pastry flour. Remember “Funky Cold Medina,” the 1989 hip-hop hit from Tone Loc? Well, this Medina is funkier and better. Like the mysterious substance in the song, Medina wheat is cold (-tolerant) and it’s sure to make everyone like you, but there the resemblance ends. Our Medina has high test weights and low pre-harvest sprouting levels. Cornell University rates it as moderately resistant to scab, mosaic virus and powdery mildew. Seed at 100–125#/acre, 3–4#/1000 sq ft.

As food grain: Makes tender pastries and quick breads. I used to make a pancake mix from homegrown soft winter wheat that was very popular with my farmers market customers. Also suitable for brewing wheat beers.

As feed grain: Protein approximately equivalent to barley, but with lower fiber content. Wheat is the best whole grain to feed to chickens and an ideal base for finisher and gestation rations for hogs. Highly palatable to ruminants, but should be fed carefully to prevent acidosis. Wheat should not be finely ground before feeding: cracking or soaking is preferable.

***8148 B**: 2# for $7.00 **C**: 10# for $27.50 **E**: 50# for $100.00* ★

INOCULANTS & PROBIOTICS

Legume Inoculation: Legumes such as beans, peas, clover and alfalfa are able to access (“fix”) atmospheric nitrogen because their roots host symbiotic bacteria of the genus *Rhizobium*. Different legumes require different species of rhizobia to form a successful relationship. The plant roots feed the bacteria while the bacteria take molecular nitrogen from the air and convert it to a form that the plant can use.

Legumes take up nitrogen from the soil like other plants, and in fact do so in preference to the energy-intensive process of nitrogen fixation if soil nitrogen is plentiful. If you are growing leguminous crops in nitrogen-rich soil, inoculation may produce little yield benefit. However, nitrogen fixation cannot take place without the requisite rhizobia: if you are planting legumes in poor soil or planting a leguminous cover crop to build soil nitrogen, inoculation is non-negotiable.

Store inoculant in a cool, dry place out of direct sunlight. We recommend using fresh inoculant each time you plant a legume even if you have planted inoculated seed in the same spot before. Fresh inoculant ensures an immediate increase in bacterial populations. When you are ready to put the seed in the ground, moisten it with water, pour the inoculant over it and mix. Plant immediately if planting by hand; by machine, you ll need to let seed dry to prevent clogging, but plant as soon as the seed has dried.

Our inoculants do not contain genetically modified materials.

Guard-N Garden Combination Inoculant For peas, beans, limas, favas, bell beans, soybeans, sweet peas, cowpeas, lentils and peanuts. **OMRI**

***8155 A**: treats 8# (0#) for $6.00*
***B**: treats 50# (0#) for $10.00*

N-Dure Alfalfa and Clover Inoculant For alfalfa, sweet clover and all the *Trifolium* clovers we list. **OMRI**

***8158 A**: treats 50# (0#) for $8.50*

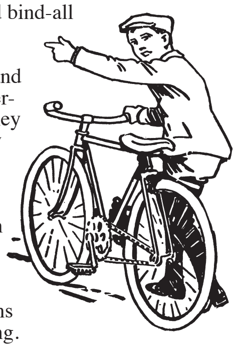
Field Pea and Vetch Inoculant Use for our PVO soil-building mix and vetch/rye mix. Also treats garden peas, lentils, favas, bell beans. **MOFGA**

***8161 A**: treats 50# (0#) for $8.50*

Humic Acids SP A dry soluble powder with humic acid concentration of 85%. Derived from the mineral leonardite. Please see below for the manifold functions of humic acids in the soil. Best used as a foliar feed in combination with **8170** Fulvic Acid, the other soluble component of humus. Can also be applied directly to roots or in the soil before seeding or planting. Humic acids are only soluble in alkaline diluents, so test the pH of your solution before applying. *Caution*: Higher than recommended concentrations of humic substances in soil can be inhibitive to proper plant growth. Don’t overdo it! See chart on page 128 for application rates. **MOFGA**

***8167 A**: 1# (0#) for $11.50 **B**: 55# for $339.00* ★

Humic acids are the wild-card molecules of soil physics and chemistry, performing complex functions by way of several different electrical and chemical reactions. Both powerful chelators and bind-all stabilizers, humic acids can prevent leaching of trace minerals into subsoil and increase uptake rate of micronutrients. They neutralize soil pH and reduce the toxicity of heavy metals. With a water-holding capacity of seven times their volume, they contribute greatly to soil structure and indirectly buffer soil temperature. They stimulate growth of foliage and roots significantly. Humic acids also have the ability to retain soil carbon for more than 1,000 years, especially in conjunction with farming practices that prevent their decomposition, such as minimal or no tillage, cover cropping and mulching. These same practices increase the microbial populations responsible for new humus formation and cycling.



Fulvic Acid Liquid Fulvic acid is a powerful antioxidant and chelator: one molecule can transport 60 or more minerals into plant cells for a more efficient and effective fertilization program. Beneficial to plants growing in low-light conditions. Consider using in combination with **8167** Humic Acids. Unlike humic acids, fulvic acids are soluble at any pH. 2% fulvic acid water-extracted from leonardite and filtered through a 200-mesh screen to eliminate clogging of drip tape and sprayers. See chart on page 128 for application rates. **MOFGA**

***8170 A**: 1 gal (10#) for $50.00 **B**: 2.5 gal (25#) for $85.00*

Myco Seed Treat A blend of microorganisms and mycorrhizal fungi to provide protection and growth enhancement for potatoes, corn, legumes, grasses and vegetables. Highly recommended if you cut your seed potatoes or can’t wait to get your corn and beans in the ground during a chilly spring. 1–2 oz treats 100# of potato seed pieces, 4–8 oz/100# of other seed. **MOFGA**

***8173 A**: 1 oz (0#) for $7.75 **B**: 1# (0#) for $67.50*

BioOrganics™ Micronized Endomycorrhizal Inoculant Mycorrhizae form beneficial relationships with the roots of most plant species: they boost plant growth by improving the roots' ability to take up nutrients, water and oxygen, and by improving soil structure. The world of beneficial microbial products is in a frenzy of mergers and acquisitions: this formulation comes from a smaller independent company that promises never to sell out. We can only hope! Contains a blend of 9 top types of endomycorrhizal spores (*Glomus aggregatum*, *G. etunicatum*, *G. clarum*, *G. deserticola*, *G. intraradices*, *G. monosporus*, *G. mosseae*, *Gigaspora margarita* and *Paraglomus brasilianum*.) Spore count guarantee is a minimum of 50 spores per cubic centimeter. Water-soluble formula may be applied as a drench to turf or perennial plantings. Use 1 Tbsp in 1 gal water per 50 sq ft. May also be blended into potting soils at 2 Tbsp/cu ft; or sprinkled into planting rows at a rate of 1 tsp per linear ft. Do not use with fertilizers high in soluble phosphorus or with soil-drench fungicides. **OMRI** **NEW!**

***8175 A**: 1.5# (2#) for $49.00*

MycoApply Endo/Ecto Nine species of endomycorrhizal fungi (30,000 endomycorrhizal propagules per lb), 7 species of ectomycorrhizal fungi (140 million ectomycorrhizal propagules per lb) and 5 species of beneficial bacteria in a base of slow-release 3-1-1 organic fertilizer. About 95% of plant species form beneficial relationships with at least one of these microorganisms. Mycorrhizal filaments expand total root mass by up to 50 times; the larger surface area increases plants' access to nutrients, water and oxygen. Compounds produced by mycorrhizae bind soil particles into clumps, which improves porosity to encourage water penetration, root growth and aeration. Add to seedbeds when sowing, work into the soil around your trees and shrubs, or incorporate into soil mix for container-grown plants to boost root growth, nutrient uptake, and the health of your plants and soils. When seeding use 1 tsp/ft; in beds mix in 2#/100 sq ft. When transplanting bare-root trees, use 1 oz/inch of stem caliper. For container planting, use 1 oz per gallon of pot capacity. For restoring fields, broadcast 40#/acre before or during planting. A-size **MOFGA**; B-size **OMRI**.

***8176 A**: 1# (0#) for $24.75* ***B**: 40# for $580.00 ★*

Mammoth P Active Microbials Nutrient Liberator. Invented by a team of Colorado State University PhD soil microbiologists with a passion for soil health and sustainable agriculture. They used directed microbial phenotyping to create a concentrated blend of *Pseudomonas putida*, *Comamonas testosteroni*, *Citrobacter freundii* and *Enterobacter cloacae*, which act as tiny bioreactors, constantly emitting enzymes that liberate soil-bound phosphorus and micronutrients. Cannabis growers using Mammoth P see bud yields 16% higher than in untreated plants, as well as stronger plants less susceptible to lodging. Use may be restricted to the bloom stage, but for best results use throughout the growth cycle (even during flushing). Also useful after field applications of Calphos or Tennessee Brown Phosphate to speed phosphorus release. Mix at 0.6 mL/gallon water: 120 mL bottle treats 12 plants from clone to harvest; 500 mL treats 50. *This is a live product:* color changes and sediment are normal. It's a bit stinky but will help you grow more stinky, sticky buds. As they say in the distinctively scented paper-mill towns around here, "It smells like money." **OMRI** **NEW!**

***8180 A**: 120 mL (0#) for $50.00* ***B**: 500 mL (0#) for $150.00 ★*

Dr. Higa's Original EM-1 Microbial Inoculant Concentrated Effective Microorganisms®. Active microbial life in the soil and on plants is a better solution than synthetic chemical fertilizers. A liquid combination of yeasts, actinomycetes and two kinds of bacteria, photosynthetic and lactic, which promotes plant health and growth and improves nutrient absorption and soil fertility. Further fermentation ("activation") of EM-1 increases the volume of microbes, but you can also just use it straight out of the bottle. The late Adam Tomash sprayed his tomatoes several times with activated EM-1 and they made it into September with no significant blight damage. Instructions for activating EM-1 can be found at fedcoseeds.com/ogs (search for "EM-1"). Our cannabis-growing friends can't do without it. **OMRI**

***8185 A**: quart (3#) for $35.00* ***B**: gal (10#) for $100.00 ★*

Recommended uses for "activated" EM-1:

- As a component of the Holistic Orchard Spray (see p. 136).
- As a drench for transplants: make a 4% solution (1 part activated EM-1 to 24 parts water) and apply it to the furrow or hole.
- As a foliar spray: use 1½–3 gal/acre or 4½–9 oz/1000 sq ft, mixed with enough water to provide coverage.
- As a soil treatment: apply 40 gal/acre over the course of a year.
- To help break down crop residue: spray 1–5 gal/acre on fields after harvest.
- Add to compost to speed up the breakdown and digestion of plant material.

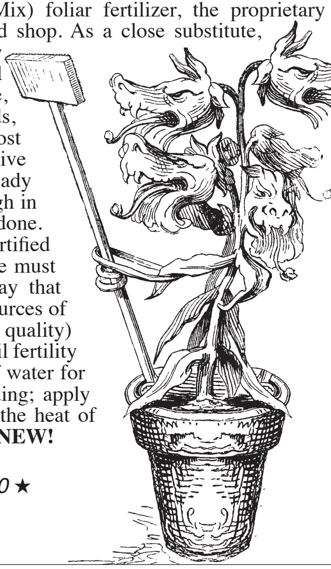
Essential® Plus 1-0-1 Derived from potassium humate, amino acids, enzymes, simple and complex carbohydrates, vitamins, kelp extracts, hydrolyzed organic proteins, a natural wetting agent and natural biostimulants. Designed to stimulate root-hair growth for improved plant vigor and nutrient uptake. Increases seed coat permeability, improving germination rates and speeding germination time even in seeds that are difficult to germinate. Popular for rooting clones: a safe and natural alternative to IBA or NAA. Reduces transplant shock in plants of all kinds. Also gaining traction with lawn-care companies to keep grass lush even in drought conditions. See chart on page 128 for application rates. **OMRI**

***8190 A**: quart (3#) for $22.50*

BioNutrients™ Soluble AG (8-1-9) Provides a quick boost of plant nutrients fortified by humic acid and kelp extract plus 671 billion beneficial bacteria endospores (including two strains of *Bacillus subtilis*, plus *B. amyloliquefaciens*, *B. licheniformis* and *B. pumilus*) and 90 billion yeast spores per lb. Contains a yucca-based wetting agent that encourages absorption. Suitable for all crops. Especially popular with tomato growers. See chart on page 128 for application rates. **WSDA**

***8192 A**: 8 oz (0#) for $13.75*

Monster Plant Mojo (4-4-0.5) We were devastated by the demise of well-loved MPM (Microbial Plant Mix) foliar fertilizer, the proprietary blend of a manufacturer who's closed shop. As a close substitute, we recommend applying this new product in conjunction with activated **8185** EM-1. Contains fish hydrolysate, kelp extract, humic and fulvic acids, and a dash of chilean nitrate to boost the nitrogen levels for rapid vegetative growth. Chilean nitrate has a shady reputation (because it is mined and high in soluble salts), but it sure gets the job done. Pending additional rule-making, certified organic operators using Chilean nitrate must demonstrate they're using it in a way that maintains or improves the natural resources of the operation (including soil and water quality) and complies with crop nutrient and soil fertility requirements. Dilute 2–4 oz per gal of water for fertigation, or 2 oz/gal for foliar feeding; apply monthly. Avoid foliar applications in the heat of the day. Do not store dilution. **MOFGA** **NEW!**



***8189 A**: 1 gal (10#) for $25.00*
***B**: 5 gal (50#) for $100.00 ★*

Looking Ahead with 2020 Vision: Dawson Julia

Alice interviewed Dawson Julia, CEO of East Coast CBDs LLC, in Unity, ME; a founding member of MOFGA's "Certified Clean Cannabis" program; and administrator of the Maine Cannabis Coalition.

Where do you see the cannabis industry heading in the next 20 years?

I see a lot of Walmart-style cannabis businesses lining up to do business in Maine. They use regulatory processes to restrict small-business competition. Our small cannabis farmers will need to build a strong grassroots union to counter that. But high quality cannabis will win the consumer every time, and the highest quality is usually grown by small craft growers. Small craft beer is killing it in Maine and small craft cannabis is positioned to do the same—*if* we can keep the regulations affordable.

What are some opportunities and challenges that the emerging legal cannabis industry holds for independent growers?

Maine's hemp program is a huge opportunity for the small grower. The regulations and fees are reasonable and the opportunity to retail direct from farm to shelf is very real. You can sell in almost every state and US hemp sales are forecasted to go from $590 million in 2017 to $22 billion by 2022. Bulk, requiring a CBD content of at least 10%, is also much in demand.

The biggest challenge will be keeping CBD/THC ownership out of the hands of Big Pharma or Big Tobacco/Alcohol.

Natural soils? Supersoil in containers? Or hydroponic? Why?

I'm a super fan of supersoil! We reuse our soil and compost everything. We focus on microbials and root uptake. We make lactic acid bacteria with rice, make [compost] teas and propagate live willow tree root microbials. We use small amounts of organic nutrients and save money compared to using premixed fertilizers and soils. Outside of one or two tea feedings per plant life-cycle we only water our plants.

In one sense, cannabis growers are just another kind of farmer. Yet it's a very different industry from food agriculture. What are some parallels and divergences you see between growing food and growing cannabis?

Corn, rye, and even wheat are sometimes grown for alcohol production, making these crops some of the deadliest in our country. But it's the non-lethal cannabis plant that has the stigma attached to it! Plus we're farming a Schedule 1 drug, according to the Feds. Unlike the corn farmer, we are heavily taxed, limited as to what we can write off, and qualify for no federal subsidies.

All farmers share the universal passion to pass down knowledge and skills to the next generation. One thing is for certain: the next generation has its full attention fixed on the cannabis farmer's magical new opportunities.

If shipping weight in parentheses is (0#), the item qualifies for free shipping!

SOIL AMENDMENTS & FERTILIZERS

Thriving sustainable agriculture is built on the ground of healthy soil. In fact, organic certification requires a soil management plan. Do a soil test to determine your soil's needs before embarking on a program of soil improvement. Check with your local Cooperative Extension for testing in your area, or consider our testing and recommendation service listed below right.

Soil amendments used with a program of crop rotation, composting and cover cropping can enhance fertility, improve soil tilth, promote disease resistance, and support beneficial soil microorganisms. Application rates vary depending on soil type and results of soil tests.

Fertilizers provide nitrogen and other nutrients in a form that is readily available to plants. Organic fertilizers can provide both an immediate boost and additional long-term fertility, feeding both the plants and the organisms that maintain soil health. We also offer soil amendments that have limited available plant nutrients but help to remineralize the soil, improve soil structure, or provide a long-term slow-release source of plant nutrients. Foliar sprays get nutrients directly to the leaves and can increase resistance to disease and to insect infestation.

Analyses provided here are those provided by the manufacturers, or, if none are available, from a Maine state lab test performed on our most recent lot: there is some variability in the nutritional analysis of natural fertilizers, so view these numbers as guides, not gospel. Fertilizers should be used as a supplement to, not a replacement for, the nutrients provided by healthy soil. Sustainability requires developing a long-term plan of cover cropping, green manuring and composting.

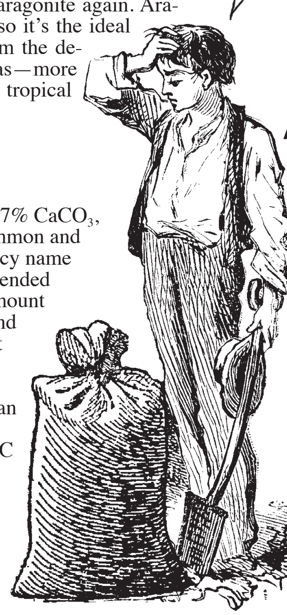
CALCIUM SOURCES

Aragonite (94% $CaCO_3$) When the price of aragonite spiked a few years ago, we tried to steer growers toward the chemically identical **8198** Calcitic Limestone, but they were having none of it. The internet forums said to use calcium carbonate from oyster shells, not from pulverized rock, so oyster shells they must have! We are acquiescing and listing aragonite again. Aragonite is even lower than calcitic lime in magnesium, so it's the ideal choice for soils with excessive magnesium. Mined from the deposits that create the white sand beaches of the Bahamas—more expensive than calcitic lime, but less expensive than a tropical vacation. Feed quality. **MOFGA** **BACK!**

8195 ***A**: 5# for $6.75*
***B**: 50# for $24.00*
***C**: pallet 40 bags (2000#) for $750.00 ★*

Pro Pelleted Calcitic Limestone Pro-Select Prill (87% $CaCO_3$, 7% $MgCO_3$). Cal Carb Equivalent 95.8%. The most common and most frequently used soil conditioner, Calcitic is the fancy name of the product we used to call **Hi-Cal lime**. It's recommended for soils with excess magnesium: contains just 1/6 the amount of magnesium carbonate as dolomitic lime. Aragonite and Calcitic are both calcium carbonate, just with a different crystalline structure and from different sources: Calcitic is mined rock, while aragonite is derived from mollusk shells. Calcitic contains marginally more magnesium than aragonite. Prilled with 2% sodium salt lignin, an NOP-allowed synthetic, as a binding agent. A-size **MOFGA**; B/C sizes **OMRI**

8198 ***A**: 5# for $5.00*
***B**: 50# for $10.00*
***C**: pallet 40 bags (2000#) for $350.00 ★*



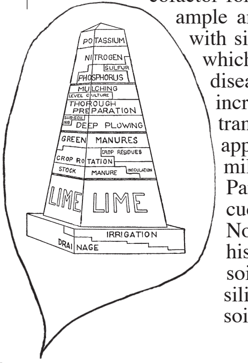
Pro Pulverized Dolomitic Limestone (53% $CaCO_3$, 42% $MgCO_3$). Cal Carb Equivalent 102.9%. Use to sweeten soil (raise pH) and provide calcium where excess magnesium is not a problem. A-size **MOFGA**; B/C sizes **OMRI**

8201 ***A**: 5# for $5.00*
***B**: 50# for $7.00*
***C**: pallet 40 bags (2000#) for $250.00 ★*

Gypsum, pelletized (70% $CaSO_4$ $2H_2O$, 24% Ca, 14% S) Gypsum is a good source of calcium when the pH is already at a desired level. The sulfur in gypsum reacts with water to form a weak sulfuric acid solution that frees the calcium in the soil. Prilled with 2% sodium salt lignin. **MOFGA**

8204 ***A**: 5# for $6.00*
***B**: 50# for $18.50*
***C**: pallet 40 bags (2000#) for $610.00 ★*

Wollastonite (48% CaO and 52% SiO_2). Cal Carb Equivalent 76.0%. Soluble-grade and at least 95% pure (may contain trace amounts of iron, manganese and magnesium). Silicon is not traditionally considered a limiting cofactor for plant growth, but researchers are finding that despite ample amounts of silicon in most soils, plants supplemented with silicon often yield better. Silicon strengthens cell walls, which reduces lodging and improves resistance to insects and disease; stimulates immune response pathways (possibly increasing production of resins and terpenes); and reduces transpiration (improving drought resistance). May be applied as a foliar spray to build resistance to powdery mildew; for yield benefits, incorporate into the soil. Particularly recommended for cannabis, orchard crops, cucurbits, sweet corn, grains and forage crops. Customer Norman B. of West Baldwin, ME, credits wollastonite for his exceptional potato crop last year (see page 115). Most soil tests do not offer recommended application rates for silicon; one approach is to use wollastonite to correct your soil pH. Dusty! Wear a mask when handling. **MOFGA**



8207 ***A**: 5# for $6.00*
***B**: 50# for $30.00*
***C**: pallet 40 bags (2000#) for $1100.00 ★*

MORE MINERALS

Azomite Named for its **A**-to-**Z** **o**f **M**inerals **i**ncluding **T**race **E**lements; contains over 67 minerals beneficial to plants and animals. Broadcast at 300–600# an acre, approximately 1–2#/100 sq ft. Use in potting soil and compost. We have two grades:

Coarse A mix of particle sizes from 1/8" to powder. Less dusty and more easily spread with a broadcast spreader. For slow-release longer-lasting applications. A-size **MOFGA**; B/C sizes **OMRI**

8213 ***A**: 4# for $7.00*
***B**: 44# for $32.25*
***C**: pallet 50 bags (2200#) for $1350.00 ★*

Micronized Very fine powder passed through a 200-mesh screen. Provides a quick release of nutrients and is also recommended as a foliar feed; allow the heavier portion to settle before adding to the sprayer. As a liquid fertilizer add 1 tsp/gal. A good free-choice trace-mineral supplement for livestock when used in addition to a balanced mineral premix. A-size **MOFGA**; B/C sizes **OMRI**

8216 ***A**: 4# for $7.00*
***B**: 44# for $32.25*
***C**: pallet 50 bags (2200#) for $1350.00 ★*

Understanding Calcium and pH Gardeners tend to worry first about the N-P-K levels of their soil, neglecting the soil's calcium. Without adequate calcium, all the fertilizer in the world will do little good. Calcium benefits soil and plants by improving the soil's physical structure, raising the pH of the soil and directly contributing to the plants' nutritional needs.

Soil Structure: Calcium increases soil porosity, which means more oxygen in the root zone and better water penetration.

Effects on pH: When lime is applied to acidic soil it increases the availability of many important plant nutrients.

Plant Nutrition: Calcium helps plants build strong cell walls, for bigger healthier plants with better disease resistance. It also helps plants metabolize other nutrients and cope with heat stress. Fruiting plants deficient in calcium may suffer blossom end rot or other quality problems.

How much lime should you apply? Don't even try to answer this question without a professional soil test! The quantity will depend not only on the current pH and calcium levels of your soil, but also on your soil's cation exchange capacity (CEC) and perhaps on what crops you plan to grow. Even on very acidic soils, most experts recommend that applications not exceed 3 tons per acre per year (about 140#/1000 sq ft).

When and how should you apply lime? Liming should coincide with a tillage event to incorporate it into the root zone. Applying in the fall gives the lime more time and moisture to react before the growing season. The good news is liming is for the long haul: you typically need to apply lime only once every 5–10 years.

Soil Testing & Organic Fertilizer Recommendation Service for Garden, Farm and Orchard

Don't guess—test! Applying fertilizers and soil amendments without the guidance of a professional soil test is like driving downtown with your eyes shut. Applying too much of one nutrient can tie up others and wreak havoc on your soil biology. But even with test results in hand, which fertilizer do you choose and how much do you apply? Fedco to the rescue! We'll send you a soil test kit and sampling instructions, plus a postage-paid box to return your soil sample and test form to the Maine State Soil Lab. You'll learn your soil pH, organic matter percentage, phosphorus, potassium, magnesium, calcium, sulfur, boron, copper, manganese, zinc, and available nitrogen, plus we'll offer customized recommendations for how to correct any deficiencies or imbalances in your soil. Order **8194-A** for annual vegetable crops and, **8194-B** for fruit tree orchards. If you order the orchard version, please let us know in your order notes whether you are establishing a new orchard or (if your orchard is already planted) whether or not your trees are bearing yet. For best results, take samples during the growing season while the soil is warm. Please be patient! We are at the mercy of how busy the soil lab is at any given time.

8194 ***A**: for annual vegetable crops (0#) for $45.00*
***B**: for orchards (0#) for $45.00*

20 Mule Team Borax Solubor (Sodium Tetraborate, 20.5% B) Soluble borate for fluid fertilizers and nutrient sprays. Boron is essential for all stages of tree growth and fruit set. Alfalfa, clover, brassicas, carrots, celery, corn, lettuce, onions, beets, tomatoes, strawberries, and tree fruits are particularly sensitive to boron deficiency. May be used in certified organic settings only to correct a documented boron deficiency. Excess boron is toxic to plants. Dry flowable powder, mixes easily into spray solutions. Or, mix into a larger quantity of fertilizer for ground applications. A-size **MOFGA**; B-size **OMRI**

***8219 A**: 5# for $34.75* ***B**: 50# for $225.00 ★*

BrixBlend Basalt (49.3% SiO$_2$, 13.3% Al$_2$O$_3$, 9.2% CaO, 5.7%, MgO, plus trace minerals) A paramagnetic stone powder from the Pioneer Valley of Massachusetts for remineralizing and enhancing the general foundational fertility of the soil. Latest magnetic susceptibility reading is 2400 cgs units. Till in 1–10 tons/acre, 5–50#/100 sq ft or broadcast at 1–5 tons/acre, 5–25#/100 sq ft. For compost, add 20–25#/cubic yard of raw material. Use up to 5% by volume in potting mixes. **Nat'l List**

***8222 A**: 5# for $6.00*
***B**: 50# for $33.00*
***C**: pallet 40 bags (2000#) for $850.00 ★*

Calphos (0-3-0, 20% Total P, 20% Ca, trace minerals) This soft-rock phosphate is an excellent choice for calcium-deficient soils as plants will take up the calcium first, freeing the phosphorus to be taken up in turn. Don't apply lime at the same time lest plants take calcium from the lime, leaving the phosphate not yet available. Colloidal phosphate contains fine clays that help sandy soils retain water and nutrients. Our current supply is prilled for ease of application, giving it a granular appearance: the granules readily break down in solution to fine colloidal particles. Buckwheat is especially talented at accessing insoluble phosphorus; follow an application of Calphos with a buckwheat cover crop to accelerate P availability for your cash crops. A-size **MOFGA**; B/C sizes **OMRI**

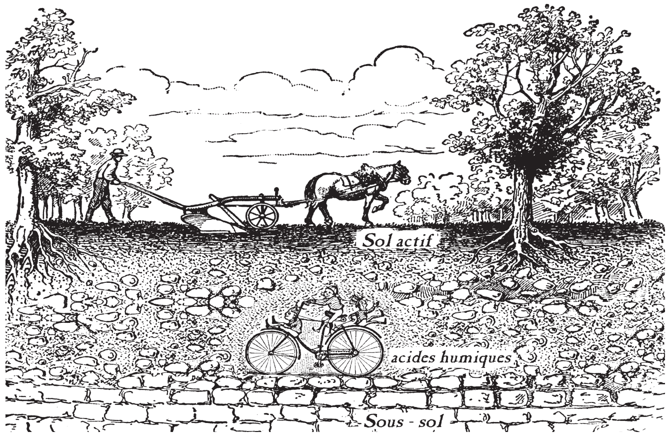
***8225 A**: 5# for $4.75*
***B**: 50# for $16.25*
***C**: pallet 40 bags (2000#) for $540.00 ★*

Monterey Epsom Salts (9.8% water-soluble Mg, 12.9% S) Magnesium is a building block of chlorophyll and therefore essential to efficient photosynthesis. In magnesium-deficient soils, or in conditions that inhibit magnesium availability (low pH, low temperatures, dry soils or soils with excess potassium or ammonium), supplementing with magnesium may boost yields significantly. May be applied to the soil or as a foliar spray. A favorite of rose fanatics and tomatoheads. Organic regulations require documentation of deficiency, preferably by soil test or tissue sampling, prior to application. **OMRI**

***8228 A**: 4# for $18.00*

Custom Mixing Fedco has a new baby! We adopted a soil mixer from our friends at the Maine Cap N' Stem Mushroom Co. It's round and red and adorable, and we are so proud of how much faster it blends fertilizers and potting mixes than the tiny old cement mixer we used to rely on. We've been using it for a year on our own mixes and are ready to offer custom blending to the masses. Buy ingredients from us or bring your own. To estimate volume requirements for products sold by weight: dense products like rock powders are about 1 yd/ton, while fluffier products like shrimp meal are about 2 yds/ton. To convert other volume measurements: there are 27 cu ft or about 700 dry qt per cu yd. Our rates assume mixes contain ten or fewer ingredients; we may charge more for complex mixes or materials that are particularly difficult to handle. Please allow at least two weeks for completion. Questions? Contact us at ogs@fedcoseeds.com. **NEW!**

***8193 A**: $50.00 per yard bulk (0#)*
***B**: $100.00 per yard bagged (0#) ★*



Granite Meal Contains about 5% potassium in very slow-release form. Plants need potassium for sugar and starch production. Granite meal can be added to the soil in large amounts without altering the pH. Greatly enhances soil structure and promotes healthier plants. Application rates are 2000–4000#/acre or 50–100#/1000 sq ft. **MOFGA**

***8231 A**: 5# for $6.00*
***B**: 50# for $23.00*
***C**: pallet 40 bags (2000#) for $700.00 ★*

K-Mag Granular Trio® SOP-MG (22% K$_2$O, 11.1% Mg, 22% S) Langbeinite is a marine deposit of potassium sulfate and magnesium sulfate in soluble form. A good source of immediate potassium for depleted soil and of magnesium where calcium is abundant. Alliums like its sulfur and potatoes like its quick boost of potassium. If you are looking for an allowed Sul-Po-Mag, this is it. A-size **MOFGA**; B/C sizes **OMRI**

***8237 A**: 5# for $8.75*
***B**: 50# for $40.00*
***C**: pallet 40 bags (2000#) for $1300.00 ★*

Hum-Amend Max Max out your soil health! This powerful soil-restoration amendment is designed to raise soil's cation exchange capacity while adding high levels of carbon and humus. Combines a soluble humate complex (containing fulvic and humic acids) with a soluble seaweed extract (a biostimulant and good source of trace minerals) on a base of raw leonardite and raw kelp meal for long-term effects. Humic and fulvic acids support plant health and increase yields by facilitating plants' uptake of nutrients and water. Granular texture with plenty of fines to provide a balanced release. Minimum 85% humic acids, compared to Menefee Humates, which were 50%. Contains no animal manures—vegan-friendly and smells nice. **MOFGA NEW!**

***8240 A**: 5# for $11.75* ***B**: 50# for $70.00*

Micronutrients Liquid Minerals While trace mineral products like **8213–8216** Azomite help maintain background levels of a wide variety of elements, they don't have the juice to correct deficiencies of specific micronutrients. We were thrilled to find a line of OMRI-listed liquid micronutrients in sizes that makes sense for home gardeners and small-scale market growers! Note that on certified-organic operations, these products may be applied only if there is a documented micronutrient deficiency. Apply 1–4 qt per acre (¾–3 oz/1000 sq ft) diluted 100:1 (⅜ oz in 4⅔ cups water; 1 pt in 12½ gal water). Repeat after 1–3 weeks if necessary. **OMRI**

Calcium helps strengthen plants' cell walls, improving crop quality, disease resistance and storage capacity. Calcium uptake may be reduced by cool or humid conditions. Midseason foliar applications of calcium can help prevent problems like blossom end rot and bitter pit. Contains 5% calcium chelated with an amino acid complex.

***8244 A**: liquid calcium, quart (3#) for $25.00*

Copper is necessary for efficient photosynthesis and respiration and affects the sugar content and flavor of produce. Copper availability may be limited by alkaline soils, high organic matter levels, saturated soils, or excessive zinc, nitrogen or phosphorus. Contains 4% chelated copper derived from copper sulfate.

***8244 B**: liquid copper, pint (3#) for $14.00*

Iron is essential for chlorophyll development and function, and is also involved in nitrogen fixation by legumes. Iron availability may be limited by alkaline soils, low organic matter levels, saturated soils, excessive phosphorus, or deficient zinc. Contains 5% chelated iron derived from ferrous sulfate.

***8244 C**: liquid iron, pint (3#) for $20.00*

Manganese helps plants to synthesize chlorophyll and is used in electron transport during photosynthesis. Manganese availability may be limited by alkaline soils, high organic matter, excessive iron, or deficient sulfur. Contains 1% nitrogen derived from hydrolyzed vegetable protein and 5% chelated manganese derived from manganese sulfate.

***8244 D**: liquid manganese, pint (3#) for $14.00*

Zinc is a component of auxin, an essential growth hormone, and is also necessary for proper root development. Adequate zinc improves cold tolerance. Zinc availability may be limited by excessive phosphorus or copper, low organic matter, or magnesium deficiency. Contains 7% zinc derived from zinc sulfate.

***8244 E**: liquid zinc, pint (3#) for $14.00*

North Country Organics® Natural Sulphate of Potash (0-0-51) The most economical source of available potassium. A-size **MOFGA**; B/C sizes **OMRI**

8246 ***A****: 5# for $11.00*
B*: 50# for $60.00*
C*: pallet 40 bags (2000#) for $2000.00 ★*

Tiger 90CR Organic Sulfur 90% elemental sulfur, 10% bentonite clay. Use to lower soil pH (make it more acidic). Often helpful for both lowbush and highbush blueberries, and for potatoes. Lowering pH of gravel paths will help control weeds. Not fine enough to be spread as fungicide; comes in small pastilles like yellow button candy. (Fungicidal sulfur is **8684-8690**.) Even in soils with correct pH, small amounts of sulfur are necessary for chlorophyll formation, the metabolism of nitrogen, and the synthesis of oils. Nutritional deficiency of sulfur is most likely on sandy soils low in organic matter. Application rates for pH correction are typically 500–1500#/acre (depending on current pH, target pH and soil type), with no more than 1000#/acre applied at once. To address nutritional deficiency of sulfur, apply 10–30#/acre, thoroughly blended into a larger quantity of fertilizer for even application. Sulfur oxidizing bacteria are inactive below 55°—don't trust soil test results showing "sulfur deficiency" from samples taken early or late in the season. Wait to apply until soil temp is at least 60°. A-size **MOFGA**; B/C sizes **OMRI**

8249 ***A****: 5# for $7.25*
B*: 50# for $28.50*
C*: pallet 40 bags (2000#) for $900.00 ★*

Tennessee Brown Rock (0-4-0, 23% total P_2O_5) The consistency of rich soil. Comes from the washing piles left behind when high-grade ore was extracted to produce superphosphate in the early 20th c. Lowest concentration of heavy metals of any phosphate source. Recommended by soil gurus Phil Callahan and Mark Fulford. A-size **MOFGA**; B/C sizes **OMRI**

8252 ***A****: 5# for $6.00*
B*: 50# for $17.00*
C*: pallet 40 bags (2000#) for $560.00 ★*

ZeoMax Garden Aid Zeolites are aluminosilicate lattices, derived from volcanic ash, that hold up to 55% of their weight in water in the small cavities of their crystal structure. If one tablespoon of zeolite crystals were unfolded, they would cover an entire football field! Negatively charged, the lattices hold the cations of essential elements. Zeolites can improve the productivity of any texture of soil, improving water and mineral retention in sandy soils and improving aeration and minimizing compaction in heavier soils. Added to compost, zeolites retain ammonium ions and prevent their transformation to ammonia gases, keeping the nitrogen from escaping into the air. Add 2–3# to 10# of potting soil. Apply to the soil at 15–20#/100 sq ft or 1–2 tons/acre and incorporate 6" deep. Water thoroughly after application so zeolites will adsorb the moisture, holding it in a thin film on their surfaces until needed. **MOFGA**

8255 ***A****: 5# for $8.00*
B*: 25# for $20.00*
C*: pallet 40 bags*
(1000#) for $575.00 ★

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

FERTILIZER BROADCASTER
ALFALFA MEAL
KELP MEAL
Soybean MEAL

Fertilizers

PLANT-BASED FERTILIZERS

Alfalfa Meal - Organic (2.8-0.5-3.6) Popular among veganic gardeners, and hands-down the best-smelling fertilizer out there. Gives plants a noticeable quick boost and feeds soil organisms. Blended with a trace quantity of certified organic soybean oil to reduce clumping. **MOFGA**

8260 ***A****: 5# for $8.50*
B*: 50# for $38.75*
C*: pallet 40 bags (2000#) for $1280.00 ★*

Kelp Meal - Organic Dried and ground seaweed contains trace minerals, enzymes and amino acids, plus a small dose of N-P-K. Contains sugars that chelate micronutrients, making them more available to plants. A natural source of hormones that stimulate root growth. Mix into the soil at the rate of 300–600#/acre or 1#/100 sq ft. **MOFGA**

8263 ***A****: 5# for $15.00*
B*: 50# for $90.00*
C*: pallet 40 bags (2000#) for $2875.00 ★*

Kelp-It Soluble Powder Dehydrated Seaweed Extract Highly concentrated powder makes an excellent foliar spray containing growth hormones, trace minerals, enzymes and carbohydrates. One package makes 1 gallon of liquid seaweed concentrate. Add the powder and 1/2 tsp of a mild biodegradable soap or non-ionic surfactant (as a wetting agent) to 1 gallon of water, agitating to dissolve the powder. Use the concentrate at a rate of 1 Tbsp/gal. To make a ready-to-use solution, mix 1/2 tsp soluble powder and 1/4 tsp soap to 1 gal water. Reseal package; the powder readily absorbs water. A-size **MOFGA**; B/C sizes **OMRI**

8266 ***A****: 10.7 oz (0#) for $16.50* ***B****: 44# for $515.00 ★*

Liquid Kelp Maine-harvested kelp, *Ascophyllum nodosum*, is a source of growth-promoting and -regulating hormones. Use when starting seeds to improve seed germination and increase root growth. Also useful as a drench to help prevent transplant shock. As a foliar feed, it will increase mineral uptake in leaves and improve photosynthesis. Add 1/2 tsp/gal ThermX™ 70 (**8714**) as a spreader-sticker to increase coverage and absorption. Can be applied to seed, root or leaf at 2 Tbsp/gal water. Use 1 1/2 qt/50 gal water per acre. **MOFGA**

8269 ***A****: pint (3#) for $8.00*
B*: 1 gal (10#) for $25.00*
C*: 5 gal (50#) for $90.00*

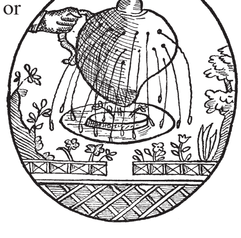
The solution is all in solution!

No matter where you are or what you grow, you've probably noticed two trends:

- Rain is an increasingly unreliable source of water for crops.
- A few more diseases and insect pests arrive each year.

Gardeners and farmers are having to irrigate when and where they've never had to before, and they are having to manage new, unfamiliar diseases and pests. It can be hard to decide whether it's worth the time and expense to irrigate or spray. If you're taking the time to water or spray your crop, why not boost the water with some extra nutrients or beneficial organisms?

Fertigation means adding water-soluble products to an irrigation system. Foliar sprays can be applied on a small scale with pump sprayers (p. 148.) Check out the chart to learn about all the great things you can use to supercharge your water!



Item	Product	Primary function	Fertigation rate	Foliar spray rate
8167	Humic Acid	Chelator	1 oz/50 gal	1 oz /50 gal
8170	Fulvic Acid	Chelator	0.1–1 fl oz/gal	0.1–1 fl oz/gal
8175	BioOrganics Endo	Mycorrhizal inoculant	1 Tbsp/gal	
8180	Mammoth P	Beneficial bacteria	0.6mL/gal	
8185	EM-1	Beneficial bacteria	5 fl oz/gal	5 fl oz/gal
8189	Monster Plant Mojo	Macronutrients	2–4 oz/gal	2 oz/gal
8190	Essential Plus	Macro & micronutrients	2 fl oz/gal	1.25–2.5 fl oz/gal
8192	BioNutrients	Macro & micronutrients	0.5 fl oz/gal	0.5 fl oz/gal
8266	Kelp-It	Micronutrients		0.5 tsp/gal
8269	Liquid Kelp	Micronutrients	2 Tbsp/gal	2 Tbsp/gal
8289	Fish Hydrolysate	Macronutrients	4 Tbsp/gal	2 Tbsp/gal
8292	Fish w/ Kelp	Macro & micronutrients	4 Tbsp/gal	2-3 Tbsp/gal
8663	Karanja Oil	Synergist		2 Tbsp/gal
8702	Actinovate	Biofungicide		0.5–1 tsp/gal
8710	Cease	Biofungicide	1.25 fl oz/gal	1.25 fl oz/gal
8714	ThermX 70	Soil and leaf penetrant	0.5 tsp/gal	0.5 tsp/gal
8717	Nu Film P	Sticker-spreader		4–6 fl oz/100 gal

Neem Cake (6-1-3) Pure full-strength neem cake. The residue of neem seed kernels after the oil has been pressed. Earthworm populations increase when neem cake is added to the soil. Added to the soil a few weeks before planting, neem's antifungal properties help suppress fusarium infestations. Use in combination with other fertilizers and soil conditioners at 10–15% by weight. Mix into the top 6–8" of the soil or apply as a topdressing around the base of your plants. Smells like old onion bagels. Contains growth-regulating hormones so be cautious using it in potting mix, adding no more than 1% by weight. **OMRI**

8272 ***A****: 4# for $17.50* ***B****: 44# for $115.00 ★*

Soybean Meal (7-1.5-3 avg.) High levels of nitrogen and potassium are released as the soybean meal breaks down, providing fertility over time. Add when first planting or transplanting. For sidedressing, consider fish meal or blood meal. Considered the most effective and economical nitrogen fertilizer for Northeast soils. Certified non-GMO. **MOFGA**

8275 ***A****: 5# for $8.00*
B*: 50# for $50.00*
C*: pallet 40 bags (2000#) for $1300.00 ★*

ANIMAL-BASED FERTILIZERS

Blood Meal (12-0-0) Fastest release time of any organic nitrogen source. Highly recommended for corn. The smell (understandably) freaks out deer. Side-dress 3 weeks after transplanting or 4 weeks after seeding, or till into soil. **MOFGA**

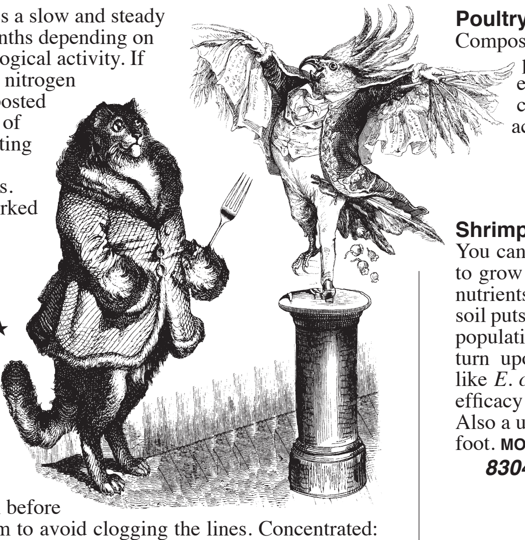
8280 ***A****: 5# for $16.00* ***B****: 50# for $100.00 ★*

North Country Organics® Bone Char (0-16-0, 32% total P_2O_5, approx. 30% Ca) Burned bone meal provides large amounts of readily available phosphorus. The most economical source of P for deficient soils (excepting fresh manure, which is bulkier and stinkier). A-size **MOFGA**; B/C sizes **OMRI**

8283 ***A****: 5# for $7.75*
B*: 50# for $35.00*
C*: pallet 40 bags (2000#) for $1100.00 ★*

Feather Meal (13-0-0) Provides a slow and steady release of nitrogen for 3 to 6 months depending on soil pH, moisture levels and biological activity. If you're playing chicken with low nitrogen levels, apply together with composted poultry manure to speed the rate of release. Apply in the row at planting time for sweet corn, melons, brassicas and other heavy feeders. Not water-soluble; should be worked into the soil. **MOFGA**

8286 ***A****: 5# for $11.75*
B*: 50# for $65.00*
C*: pallet 40 bags (2000#) for $2100.00 ★*

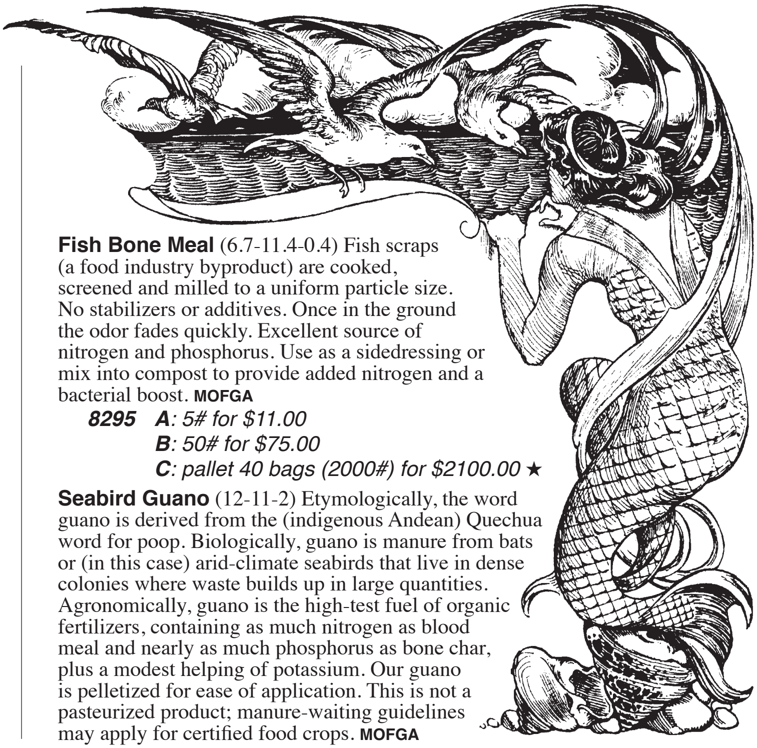


Fish Hydrolysate (2-5-0.2) Fish heads, bones, skin and guts finely ground and then enzymatically digested. The resulting gurry is stabilized with phosphoric acid. Liquid goes into solution readily and can be used as foliar feed. Strain before adding to a drip irrigation system to avoid clogging the lines. Concentrated: use 2–4 Tbsp/gal of water for garden application or foliar spray. Use $2\frac{3}{4}$–$6\frac{1}{4}$ qt/50 gal water per acre. **MOFGA**

8289 ***A****: pint (3#) for $8.00*
B*: 1 gal (10#) for $25.00*
C*: 5 gal (50#) for $90.00*

Fish Hydrolysate with Kelp (2-5-0.2) All the N, P & K of fish plus the micro-nutrients and growth hormones of kelp. Can be used as a foliar feed, in drip irrigation and for better seed germination and seedling growth. Alice's preferred drench for onions and other early transplants; provides readily available nitrogen when the microbes are still sluggish in the cold spring soil. Improves plant vigor and stress resistance, increases storage life. Use 4 Tbsp/gal water for soil drench, 2–3 Tbsp/gal water for foliar spray. Use $2\frac{3}{4}$–$6\frac{1}{4}$ qt/50 gal water per acre. **MOFGA**

8292 ***A****: pint (3#) for $8.00*
B*: 1 gal (10#) for $25.00*
C*: 5 gal (50#) for $90.00*



Fish Bone Meal (6.7-11.4-0.4) Fish scraps (a food industry byproduct) are cooked, screened and milled to a uniform particle size. No stabilizers or additives. Once in the ground the odor fades quickly. Excellent source of nitrogen and phosphorus. Use as a sidedressing or mix into compost to provide added nitrogen and a bacterial boost. **MOFGA**

8295 ***A****: 5# for $11.00*
B*: 50# for $75.00*
C*: pallet 40 bags (2000#) for $2100.00 ★*

Seabird Guano (12-11-2) Etymologically, the word guano is derived from the (indigenous Andean) Quechua word for poop. Biologically, guano is manure from bats or (in this case) arid-climate seabirds that live in dense colonies where waste builds up in large quantities. Agronomically, guano is the high-test fuel of organic fertilizers, containing as much nitrogen as blood meal and nearly as much phosphorus as bone char, plus a modest helping of potassium. Our guano is pelletized for ease of application. This is not a pasteurized product; manure-waiting guidelines may apply for certified food crops. **MOFGA**

8298 ***A****: 5# for $15.00* ***B****: 40# for $80.00*

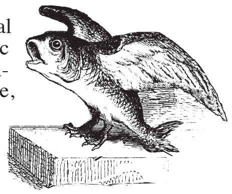
Poultry-Manure Compost Kreher Enterprises (5-4-3 with 9% Ca) Composted, pasteurized and pelletized poultry litter from New York farms provides a good balance of major plant nutrients and other essential elements. Pasteurization removes the threat of weed seed and pathogen contamination, and the composted material increases the biological activity of your soil. A-size **MOFGA**; B/C sizes **OMRI**

8301 ***A****: 5# for $6.50*
B*: 50# for $22.50*
C*: pallet 40 bags (2000#) for $750.00 ★*

Shrimp Meal (A-size: 5.7-10-0; B/C-sizes: 4-5-0; both approx. 14% Ca) You can't barbecue it, boil it, broil it, bake it, or sauté it, but you can use it to grow healthy plants! As well as being an excellent source of major plant nutrients, shrimp shell meal is rich in chitin (23% or more). Adding it to your soil puts beneficial chitin-eating bacteria into a feeding frenzy and subsequent population boom. Once they've eaten up all the chitin you applied, they will turn upon pathogenic fungi and nematodes and disease-causing bacteria like *E. coli* and salmonella. A solid body of scientific evidence supports the efficacy of chitinous soil amendments in the control of soil-borne pathogens. Also a useful addition to compost mixes and potting soils at $\frac{1}{2}$ cup per cubic foot. **MOFGA**

8304 ***A****: 5# for $10.00*
B*: 50# for $50.00*
C*: pallet 40 bags (2000#) for $1500.00 ★*

Feed Me!



Plant and animal byproducts provide a natural source of plant nutrients and support the organic principle of recycling natural resources within agricultural systems, putting "waste" to productive use, reducing landfill space, and preventing contamination of our waterways. Unlike synthetic fertilizers, they provide tasty nibbles for soil life, and a well-fed microbial population will help to unlock the nutrients already held in your soil.

Fertilizer analyses report levels of soluble nitrogen (N), phosphate (P) and potash (K) available to your plants in the current growing season. Additional nitrogen, phosphorus and potassium contained in the material may become available at varying rates over time. Release rates depend on many factors, including particle size, temperature and microbial activity in your soil.

The analyses we provide for our plant and animal meals, and for the mixes we produce in-house using those products, are not guaranteed analyses. These natural products are highly variable. These analyses represent Maine state lab tests performed on the most recent lot we purchased, and we keep these numbers updated on our website as fresh lots come in and new tests are performed. The numbers here do provide some guidelines for determining the approximate ratios of nutrients in plant and animal meals.

FEDCO MIXES

All ingredients in our mixes, which are formulated and blended in-house, are on the National List and on the MOFGA list of allowed products.

Sleepytime Garden Blend The last of the root vegetables have been tucked into the cellar, and the soil microbes snooze contentedly under a blanket of young winter rye. Snow is coming soon, and a hush descends on the gardening season. The gardener may wish to feed the garden a bedtime snack before she curls up by the fire with the new Fedco catalog and a cup of tea, but this is not the time for fertilizer with soluble nutrients. Roots and microbes alike are too sleepy to do anything with rich food, and it will just get washed away before spring arrives. It's the perfect time to spread rock powders, which need time and moisture to release their benefits. Our blend of granite, zeolites, gypsum, microminerals and humates will improve soil structure, remineralize and enhance nutrient availability for the next growing season. Does not contain significant amounts of soluble nutrients and will have a gently balancing effect on soil pH, so may be applied to any soil without regard to soil test results. Apply 2 tons/acre or 100 lbs/1000 sq ft. **MOFGA** **NEW!**

8307 ***A**: 5# for $6.00* ***B**: 50# for $39.00*
***C**: pallet 40 bags (2000#) for $1000.00 ★*

Vegemighty (3-2-2.5) The fertilizer formerly known as **Bulb Planting Mix** is still perfectly suitable for this purpose, but we are rebranding it to emphasize that this is an excellent all-purpose slow-release fertilizer for those who prefer to avoid animal products, whether for ethical reasons or so as not to attract critters. Use 1–2 tsp per transplant (or bulb) mixed into the loosened soil below planting depth, at 5#/50 sq ft as a topdressing. Contains soybean meal, Calphos, organic alfalfa meal, sulfate of potash and kelp meal. Does not contain brewers' yeast extract, and may or may not encourage the adoption of an Australian accent. **MOFGA**

8309 ***A**: 5# for $7.50*
***B**: 50# for $50.00*
***C**: pallet 40 bags (2000#) for $1300.00 ★*

Turbo-Tuber (Approx. 7-2-9, plus 2% Ca and 3.5% S) Magic Molly, our potato superhero, is the fastest girl in town: her jacked-up hybrid hatchback runs on our high-test organic fertilizer, formulated to meet the nutrient requirements of potatoes. Blended in-house from fish meal, feather meal, soybean meal, sulfate of potash, dolomitic lime, pasteurized poultry manure and K-mag. On balanced soils, apply at 5#/25 row feet, 50#/250 row feet, or 2000#/acre and work into the soil to planting depth. **MOFGA**

8315 ***A**: 5# for $9.75* ***B**: 50# for $72.50*
***C**: pallet 40 bags (2000#) for $1750.00 ★*

3G Greener Garlic Grower (approx. 3-3.5-3.5, plus sulfur) By popular demand, we designed a special Fedco mix to meet the nutrient requirements of garlic. 3G is about the fastest data speed you can expect in much of rural Maine, but we like life in the slow lane. We don't mind planting garlic in October and waiting until August to reap our pungent harvest. With 3G Greener Garlic Grower, you can expect better spring emergence, more vigorous plants, bigger bulbs and richer flavor. On balanced soils, apply 2 tons/acre or 100 lbs/1000 row ft banded in-row, or 1 Tbsp per clove for small plantings. If you like gardening even more than cat videos, try 3G. **MOFGA** **NEW!**

8317 ***A**: 5# for $9.75* ***B**: 50# for $75.00*
***C**: pallet 40 bags (2000#) for $1950.00 ★*

Tears of Joy Onion Kit All you need to grow a bountiful healthy crop of onions, whether you're starting with onion sets or plants or growing your own seedlings. Includes 5# of NutriVeg for season-long release of nutrients; a pint of fish hydrolysate with kelp to get your transplants off to a good start; 50' of white-on-black plastic mulch to stop weeds, retain moisture, and keep the soil comfortable for cool-loving alliums; a quart of Garlic Barrier to deter fungus and insect pests; 25 mesh bags to store the roots of your labor; and growing instructions. All inputs **MOFGA**.

8318 ***A**: kit (13#) for $40.00*

Blueberry Booster A blend of granite meal, sulfur, Tennessee brown phosphate, trace minerals and compost. Brings down the soil pH and provides the nutrients necessary for healthy blueberry plants and good fruit. Mix 3# per plant into the soil when planting. As a sidedressing in spring or fall apply 3# per plant. **MOFGA**

8321 ***A**: 3# for $4.00* ***B**: 30# for $26.00*

Hole-Istic Spring Planting Mix Recommended for establishing new fruit trees. Our own well-balanced blend of soil amendments in a humus-rich base of worm castings. Also contains Tennessee brown phosphate, alfalfa meal, Azomite and K-Mag. Add 3# per tree hole when planting. **MOFGA**

8324 ***A**: 3# for $6.00* ***B**: 30# for $42.00*

Fruition Mix A balanced fertilizer to keep your bearing fruit trees healthy and productive. Gypsum (to maintain optimum calcium levels to promote disease resistance), soybean meal (for slow-release nitrogen and a small potassium boost), and Azomite in a compost base to fuel the microbial engine. Bearing fruit trees may not require fertilization every year, but if your tree put on 4" or less of terminal growth in the previous season then our Fruition Mix will put new spring in its step. In spring apply 10# per 1" trunk diameter, or 1 bag per tree 5" and over, out to the drip line. **MOFGA**

8330 ***A**: 50# for $40.00*

Fall Fruit Tree Prep Mix To prepare your land in fall or winter for spring fruit-tree planting, use this mix. Without digging a hole, spread one bag on an area 4–6' in diameter. Cover with 1/8 yd (about 3 1/2 cu ft) of compost and then with 1/8–1/4 yd of chipped branches and brush. As the chipped brush breaks down over the winter it promotes mycorrhizal fungi, which improve root growth and function. By spring you'll have a rich spot ready to plant; just pull back the mulch, dig the hole, and incorporate the supplements and compost as you back-fill around the tree roots. Contains calcitic lime, colloidal phosphate, Azomite, granite meal, humates, greensand, bone char, kelp meal, blood meal. **MOFGA**

8333 ***A**: 32# for $40.00*

Ancients Rise Mix Whether they be abandoned heirlooms or wild seedlings, tucked in the woods or growing alongside an old road, apple trees live on for hundreds of years. More and more people are renovating these old and sometimes forgotten trees, not only to enhance production and fruit quality, but also as acts of reverence. Our unique blend of rock powders, trace minerals, biostimulants and humic acid is formulated to enhance the soil cation exchange capacity, build humus, and condition the soil in which the ancient roots reside. Best if spread at the tree's drip line and several feet beyond. No need to work into the soil—just cover with a thick layer of woody mulch. Can be applied in fall or spring, ideally in conjunction with a thoughtful pruning program. Apply one bag per old tree. Ancients, rise! **MOFGA**

8336 ***A**: 50# for $50.00*

OTHER MIXES

Fertrell® Feed•n•Gro (3-2-3) Slow-release plant food made with blood meal, bone meal, feather meal, peanut meal, alfalfa, aragonite, sulfate of potash, greensand and kelp. Apply when planting at 2–3#/100 row ft and side-dress at the same rate when plants are a few inches high. Can be used under transplants at 1/4 cup per hole. Side-dress later if needed. Apply to orchards at a rate of 3000#/acre. **MOFGA**

8339 ***A**: 5# for $9.25*
***B**: 50# for $45.00*
***C**: pallet 40 bags (2000#) for $1450.00 ★*

NutriVeg® (5-4-4, 5% Ca) A blend of fertilizers and minerals to provide balanced nutrition for all your plants and vegetables. Contains alfalfa meal, crab meal, feather meal, fish meal, kelp meal, kelp extract, rock phosphate and sulfate of potash. Before planting, work it into the top of the soil. Reapply as needed during the growing season. For fruit trees and shrubs apply around the drip line and work into the top layer of soil where the roots feed. Apply again when trees are under stress or if soil is poor. Made in Maine. **MOFGA**

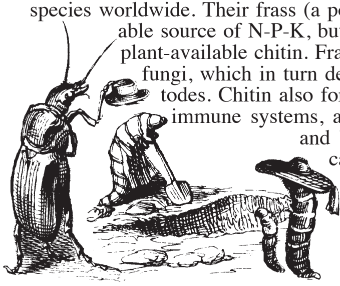
8342 ***A**: 5# for $12.00*
***B**: 50# for $65.00*
***C**: pallet 40 bags (2000#) for $2175.00 ★*

Biochar Join the carbon-farming revolution. Biochar is the product of heating organic matter in a low-oxygen environment: instead of releasing the carbon into the atmosphere, this converts it to a highly stable form that can be held in the soil for hundreds or thousands of years. Think of biochar as a super-compost! Biochar helps your soil sequester more carbon and emit less nitrous oxide (a greenhouse gas 300 times more potent than carbon dioxide). It provides a dream home for beneficial bacteria and fungi and prevents essential plant nutrients from leaching out of the root zone. Unlike the RICHMix biochar we used to carry (which was inoculated and blended with basalt powder) this new product is 100% pure horticultural-grade raw char, with 70–85% fixed carbon. Apply raw char at up to 20#/1000 sq ft or 700#/acre on ground you are resting or preparing to put into production for the first time. **Do not apply this product as-is to ground that is currently in production!** Raw char may inhibit plant growth for a year or two: the native soil microbes consume available nitrogen while slowly colonizing the micropore matrix. Then the magic happens and plant growth explodes in year three or four. If you can't wait that long, blend raw char with your compost feedstock, using up to 50% char. The compost will finish faster and the compost/biochar blend may be applied to growing plants with immediate benefits. And if you're REALLY in a hurry, soak biochar in compost tea for 24 hours (this is practical only for small operations, since the mucky wet biochar would not handle well in a mechanical spreader). But Mother Nature counsels patience. **MOFGA**

8348 ***A**: 5# for $10.75*
***B**: 25# for $39.25*
***C**: pallet 80 bags (2000#) for $2000.00 ★*

COMPOST & POTTING SOIL

Superworm Frass (2-2-2, 16% Chitin) The excrement of darkling beetles is highly valued as a soil amendment by cannabis growers. And as if "darkling beetle" didn't already sound like the invention of a fantasy novelist, the manufacturers have dubbed their darkling beetle larvae "superworms." On a dark and stormy night, an evil band of fungus gnats swarms toward your Conspiracy Kush. Superworm to the rescue! Darkling beetle is the common name for the Tenebrionidae family of beetles, which comprises more than 20,000 species worldwide. Their frass (a polite word for insect poop) is a respectable source of N-P-K, but more importantly it is a rich source of plant-available chitin. Frass nourishes chitin-feeding bacteria and fungi, which in turn devour gnat eggs and root-feeding nematodes. Chitin also fortifies plants' cell walls, stimulates their immune systems, and fosters healthy blooms (think more and bigger and stickier buds!) Not just for cannabis: frass is a useful addition to potting soils and an excellent sidedressing for any crop. **MOFGA** **NEW!**



8351 ***A**: 1# (0#) for $10.00*
***B**: 5# for $50.00*
***C**: 50# for $270.00 ★*

Worm Castings (0.5-0.5-0.3 avg. and trace minerals) Research at Ohio State University indicates that adding 10–20% worm castings by volume to potting mixes greatly improves germination, seedling growth and plant productivity, but greater amounts produce decreased benefits. Worm castings limit plant disease and have beneficial effects including enhanced mycorrhizal activity and the suppression of parasitic nematodes. Benefits are lost if castings are sterilized. Our non-sterile castings come from locally farmed worms. **MOFGA**

8350 ***A**: 8 qt (8#) for $14.00*
***B**: 20 qt (20#) for $29.00*
***C**: 2 cu yd (2000#) for $1155.00 ★*

Vermont Compost Plus® Blended from composted manure and plant materials, blond sphagnum peat moss, granite meal, animal and/or protein meal, black rock phosphate, kelp meal, gypsum, vermiculite and langbeinite. A great boost for transplants, potted plants and garden soils. Improves soil structure, provides a generous dose of slowly released nutrients and enhances microbial activity. Rejuvenate potted plants by spreading a shallow layer on the top of the container and watering in. Add a few tablespoons in the bottom of a transplant hole to reduce transplant shock. Sidedressing greens after early cuttings will stimulate new growth. Improve your potting soils with 4–8 Tbsp/qt. Will not burn roots. If you require a lift gate to unload the tote (actual weight about 1500 lbs), additional freight charges apply. **MOFGA**

8353 ***A**: 60 qts (60#) for $45.00*
***B**: pallet 35 bags (2000#) for $1500.00 ★*
***C**: 2 cu yd tote (2000#) for $850.00 ★*

Coast of Maine Quoddy Blend™ Compost Blend of composted lobster, crab, peat, bark and cow manure. Rich in micronutrients. Ideal for flower and vegetable beds. **OMRI**

8356 ***A**: 1 cu ft (40#) for $10.00*

Coast of Maine Penobscot Blend™ Compost & Peat 75% composted salmon, mussels and wild blueberries with 25% sphagnum peat. Perfect for mulching trees and shrubs, or topdressing lawns. Adds nutrients and structure to planting mixes. **MOFGA**

8359 ***A**: 1 cu ft (40#) for $11.00*

GreenTree Growers' Blend™ A lighter blend of coir, sphagnum peat and organic nutrients. Recommended for small seeds, early growth and any plants that prefer high air capacity and quick drainage. Adequate fertility for four weeks of growth, and may be used longer with supplemental fertilizer. Made in New York. **MOFGA**

8363 ***A**: 1.5 cu ft (40#) for $21.50*
***B**: pallet 85 bags (2380#) for $1500.00 ★*

GreenTree Ag Blend™ All-purpose blend, light on the peat, with coconut coir, worm castings and a well-balanced organic nutrient package. pH 6.5 and EC 1.5 mS/cm. Suitable for seed starting, transplants and microgreens. Made in New York. **MOFGA**

8365 ***A**: 1.5 cu ft (40#) for $21.50*
***B**: pallet 85 bags (2380#) for $1500.00 ★*

GreenTree Ithaca Blend™ A premium high-test potting soil. Coir, sphagnum peat and worm castings form the base of this top-quality mix; GreenTree's own biochar is added to encourage a thriving microbial population, and the whole concoction is topped off with a generous well-balanced helping of organic nutrients. Highly recommended for indoor growers, container gardening or slow-growing seedlings that will be in the greenhouse for six weeks or more. Seth Yentes of North Branch Farm said his onion seedlings thrived best in this soil. He observed that it has excellent water-retention capacity, and it doesn't get slimy on top like some organic potting soils. Made in New York. **MOFGA**

8368 ***A**: 1.5 cu ft (40#) for $27.50*
***B**: pallet 85 bags (2380#) for $1900.00 ★*

CannaLot Medicinal MegaSoil Dan, a faithful Fedco customer with a flair for experimentation, developed this mix and was kind enough to share his formula with us. He says, "I've been working on maximizing inputs to the point of performance versus death on these plants for about ten years, and have developed a feeling for how much they can take…This mix showed no signs of N or P overdose on foliage for the 2017 season." Use this complete soil mix in **8808** Fabric Pots to take your cannabis plants from 12" to harvest. To maximize quality and yield, fertigate with **8189** Monster Plant Mojo and **8185** EM-1 and **8289** Fish Hydrolysate. Contains a wide variety of mineral-, plant- and animal-based organic fertilizers (including biochar to support microbial activity, crustacean meal to deter fungus gnats and stimulate production of terpenes and cannabinoids, and wollastonite for strong plant structure) in a base of compost, worm castings, coir and a little peat. This specialty soil is not intended for seedling production and may not perform well for that purpose. As King Arthur would sing, "Don't let it be forgot/ That once there was some pot/ For this brief shining season that was grown/ In CannaLot." Approx. 50 qt or 1.67 cu ft per bag. **MOFGA**

8369 ***A**: 50# for $55.00*

Vermont Compost Fort Vee™ Potting Soil Blond sphagnum peat, compost, vermiculite and coir with a blend of organic and mineral amendments. Widely used by growers who make soil blocks. Has good water retention and a long-lasting nutrient supply from the high proportion of compost in the mix. Made in Vermont. If you require a lift gate to unload the tote (actual weight around 1500 lbs), additional freight charges apply. **MOFGA**

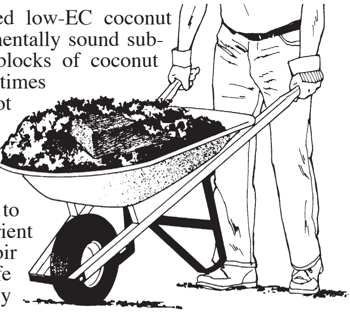
8371 ***A**: 60 qts (60#) for $45.00*
***B**: pallet 35 bags (2000#) for $1350.00 ★*
***C**: 2 cu yd tote (2000#) for $725.00 ★*

Vermont Compost Fort Light™ Potting Soil Blond sphagnum peat, compost, perlite, vermiculite, herbs, and a blend of organic and mineral amendments. Recommended for cell-tray seedlings. Warms more quickly and drains better than Fort Vee. Might need additional fertilizing prior to transplanting if seedlings grow for more than 4 weeks. Try topdressing with **8353** Compost Plus. Made in Vermont. If you require a lift gate to unload the tote (actual weight around 1500 lbs), additional freight charges apply. **MOFGA**

8374 ***A**: 60 qts (50#) for $45.00*
***B**: pallet 35 bags (2000#) for $1350.00 ★*
***C**: 2 cu yd tote (2000#) for $725.00 ★*

Living Acres NP Germination Blend™ A light-textured potting soil with extra perlite, screened to 1/4". Recommended for the smallest flower and herb seeds. Seedlings more than three weeks old should be fertilized or transplanted to a more nutrient-rich blend to grow out. Made in Maine. **MOFGA**

8377 ***A**: 2 cu ft (50#) for $22.50*



Coir Blocks This premium washed low-EC coconut coir is a biodegradable and environmentally sound substitute for peat moss. Compressed blocks of coconut fibers (coir) swell to eight or nine times their original size when placed in hot water. The fibers are quite short but have excellent moisture-retention capacity. pH 5.0-7.0, electrical conductivity of less than 0.5 S/m. Use in potting mixes or to add organic matter to your soil. Improves aeration and nutrient retention. Easy to store and ship. Coir has been commended by the Wildlife Conservation Society as ecologically sustainable. Each block expands to approximately $2\frac{1}{2}$ cubic ft once hydrated. To hydrate, set up a large container with 6–8 gal of water. Allow the block to soak for about twenty hours, or until it's wet through and breaks apart. **MOFGA**

8380 *A: one block (10#) for $18.00*
B: pallet 198 blocks (2000#) for $1800.00 ★

Perlite Volcanic glass that has been heated until it "pops" like corn, resulting in a lightweight, porous and stable material. Widely used in potting mixes (usually as 20–25% of the total mix) to improve water retention and prevent compaction. Also used for rooting cuttings: place cuttings in a plastic bag of moistened perlite with the cut ends buried up to the node, then fill the rest of the bag with air, seal, and leave in indirect sunlight for 2–3 weeks. **MOFGA**

8389 *A: 1.5 cu ft (15#) for $21.75*
B: 2.7 cu yd tote (2000#) for $550.00 ★

Rice Hulls A great alternative to perlite in your growing medium—carbonaceous, renewable and less dusty to mix. May be included at up to a third of your potting mix by volume. Also used as a mulch for container plants to retain soil moisture and improve microbial activity. Parboiled to eliminate viable weed seeds. Improves aeration and retains moisture. May cause rapid surface dry-out even when underlying soil moisture is ample; be sure not to overwater. Remains stable during the average plant production cycle with minimal nitrogen tie-up. **OMRI**

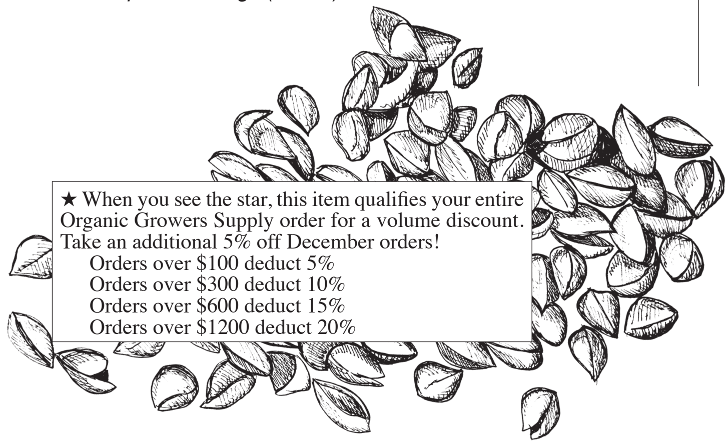
8392 *A: 7 cu ft (65#) for $23.00*
B: pallet 16 bags (1800#) for $340.00 ★

Buckwheat Hulls An attractive economical sustainable mulching alternative. Cover your beds with a thin layer of hulls, $\frac{1}{2}$–1" thick: it will look sparse at first and the hulls may seem light enough to blow away in a good breeze. They will swell up nicely after a rain or two and settle down to a summer of weed and grass suppression. We have a surprise customer base for these hulls from people who use them not to mulch, but for making zafus and other pillows. We happily sell them to gardeners and meditators alike. **MOFGA**

8397 *A: 2 cu ft (25#) for $12.50*
B: pallet 44 bags (2000#) for $450.00 ★

Chocolate Mulch The only mulch that might sabotage your diet resolutions—it really does smell like chocolate! The shells of the cocoa bean make an excellent organic mulching material, dry and weed-free. While the smell may make the gardener hungry, it repels many insects. The dark reddish-brown color is very attractive and deepens with age. You may find references online to cocoa shell mulch being harmful to pets or wildlife, but very few animals will eat it and even fewer will eat enough to cause ill effects. Best applied in sunny dry areas. Apply a 1" thick layer and water lightly to prevent the hulls from blowing away; as they dry, they will curl and interlock, providing an effective and long-lasting barrier against weeds. **AYC**

8400 *A: 2 cu ft (25#) for $16.00*
B: pallet 60 bags (1500#) for $850.00 ★



★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

FABRIC & PLASTIC MULCHES

WeedGuardPlus® Standard Weight Organic Grower Rolls. Sturdy dark brown paper provides a biodegradable mulch and weed barrier made from cellulose fibers. Porous enough to allow water penetration. Usually provides a season of weed suppression and soil-temperature moderation, although the rate of decomposition will depend on weather conditions and the degree of biological activity in the soil. Perfect for giving competitive crops a protected start. Recommended for pumpkins, squash, cabbage, broccoli and cauliflower. Not recommended for high-traffic areas or where reliable season-long protection is required. A great alternative to plastic mulch if you want to reduce your footprint or your end-of-season labor bill. 36" wide. **OMRI**

8403 *A: 36"x250' (21#) for $60.00*
B: 36"x500' (35#) for $95.00

Woven Ground Cover Thick 4.75 oz. commercial-grade fabric that blocks stubborn weeds (like quackgrass and dandelions) that won't be stopped by organic mulches, but is not a throwaway product like the plastic mulches. This super-rugged fabric will last at least a decade if protected from photodegradation by a thin layer of wood chips, straw or hay. Very resistant to tearing. Use around the base of trees, in perennial flower beds, or in permanent walkways in your garden. Allows water penetration. We might need to replace this product with a new version by summer of 2020; check our website for current information.

8406 *A: 4'x50' (4#) for $60.00*
B: 4'x250' (35#) for $220.00 ★
C: 6'x50' (6#) for $90.00
D: 6'x250' (60#) for $325.00 ★

White on Black Plastic Mulch Upper white layer reflects sunlight back on the plants, increasing photosynthesis. Black lower layer blocks light to suppress weeds. Less solar energy is transmitted to the soil, keeping soil temperatures lower. Growers on the Vermont Vegetable and Berry Growers Association listserv report that white-on-black mulch repels thrips as well as reflective silver mulch, while being easier on workers' eyes. Recommended for strawberries, onions, brassicas and lettuce. 1.0 mil. 4' wide.

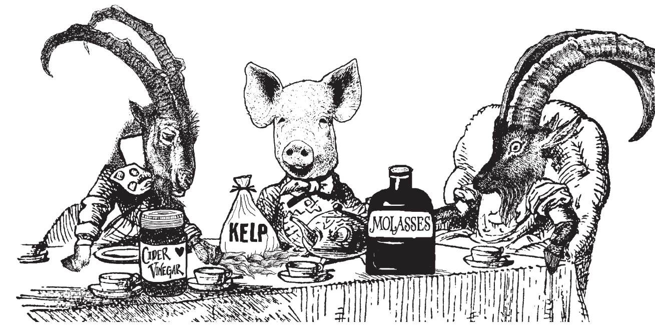
8412 *A: 4'x50' (0#) for $8.50*
B: 4'x250' (5#) for $27.50
C: 4'x4000' (80#) for $300.00 ★

Embossed Black Plastic Mulch Good all-purpose plastic mulch for cool-weather areas. Excellent weed suppression. Increases soil temperatures by several degrees. Put down a few weeks before planting to allow the soil to soak up some heat. Embossed texture increases strength and minimizes tearing. Recommended for tomatoes, cucurbits and sweet corn. 1.0 mil. 4' wide.

8418 *A: 4'x50' (0#) for $7.25*
B: 4'x250' (5#) for $20.00
C: 4'x4000' (80#) for $210.00 ★

IRT 100 Mulch **I**nfra**R**ed **T**ransmitting plastic suppresses weeds nearly as well as black mulch and lets infrared light through to warm the soil more quickly and to a higher temperature. For northern growers, IRT adds days to the growing season at both ends. Recommended for long-season squash, melons, peppers, eggplant and okra. 1.0 mil. 4' wide.

8421 *A: 4'x50' (0#) for $9.75*
B: 4'x250' (5#) for $35.00
C: 4'x2400' (50#) for $205.00 ★



LIVESTOCK SUPPLIES

SUPPLEMENTS

Not all feed supplements are created equal! We love the way Crystal Creek® formulates their minerals with careful attention to the needs of livestock. Their phosphorus source is cleaned to practically eliminate toxins like fluoride, aluminum, lead, arsenic and cadmium. The trace mineral packages avoid inorganic sulfates in favor of more bioavailable polysaccharide chelates. Most important for animals in the Northeast, Crystal Creek uses 100% selenium yeast (95% bioavailable) instead of sodium selenite (25% bioavailable). The federal government limits the amount of total selenium that may be used in livestock supplements to 3 ppm of the total ration, but this is marginally sufficient in areas with naturally low selenium levels in the soil, so the bioavailability of this ingredient is key to maintaining optimum health and reproductive efficiency. This line comes highly recommended by Jeff Bragg, who runs one of Maine's largest organic dairies.

Crystal Creek Swine Mineral A balanced and highly bioavailable formula for weaned market hogs. Contains no synthetic lysine; suitable for organic production. Does not contain adequate calcium and phosphorus to support optimum performance in breedstock and nursing pigs. Inclusion rates vary depending on growth stage: mix thoroughly with feed at a rate of 37–50# mineral per ton, along with 5–7# of salt—we recommend **8482** Redmond trace mineral salt. Do not overmix or feed free-choice. **MOFGA**

***8440 A**: 50# for $69.00*

Crystal Creek Poultry-Pro® Mineral Plus For all poultry; contains sufficient niacin to maintain optimal health in waterbirds. Formulated with digestive enzymes for improved feed efficiency. Offers non-antibiotic support against pathogens like salmonella and *E. coli* in the form of yeast derivatives. Contains synthetic dl-methionine at rates permitted for organic production. Mix thoroughly with feed at a rate of 30–50#/ton: rate depends on growth stage and production type. Do not feed free-choice. **MOFGA**

***8446 A**: 50# for $115.00 ★*

Crystal Creek 2:1 Goat Mineral For growing and lactating goats. May be mixed with feed at 125–150#/ton (use the higher amount if grain intake is low) or offered free-choice. Formulated with copper for a goat's requirements: *do not feed to sheep*. **MOFGA**

***8452 A**: 50# for $80.00*

Crystal Creek Sheep Mineral For fast-growing and lactating sheep. May be mixed with feed at 125–150#/ton (use the higher amount if grain intake is low) or offered free-choice. Formulated with attention to sheep's sensitivity to copper. **MOFGA**

***8458 A**: 50# for $80.00*

Crystal Pellets™ These aloe-vera–based polysaccharides offer multiple benefits: improved immune response, suppression of harmful microorganisms, increased populations of beneficial microorganisms, reduced inflammation and enhanced regenerative activity of antioxidants on cells. Recommended for freshening ruminants, young poultry, or any livestock during weaning, shipping or persistently unfavorable weather. Feed 1/2–2 oz per 100# of body weight. **MOFGA**

***8467 A**: 50# for $125.00 ★*

Fertrell® Grazier's Choice A mix of kelp meal, feed-grade soft rock phosphate, Redmond trace mineral salt, vitamin E, sodium selenite and diatomaceous earth designed for grazing livestock. Contains no added copper so safe for sheep. Does not contain a full complement of micronutrients. **MOFGA**

***8473 A**: 50# for $50.00*

Horse Power Add to feed at 2 oz per day for mature horses to improve strength and stamina and reduce stress. 9–10.5% Ca, 3% P, 1% Mg, 18–20% salt with trace minerals, vitamins, yeast and lactic acid bacteria. **AYC**

***8476 A**: 50# for $85.00*

Diatomaceous Earth Perma-Guard Fossil Shell Flour® Anti-caking Agent. Many livestock producers swear by diatomaceous earth as a preventive for internal parasite problems; clinical studies do not back this claim, but most animals will consume it freely and it may help improve gastrointestinal health. It is certainly effective on external parasites and to control the growth of maggots under bedding, as the sharp edges of the particles lacerate insects' bodies and cause death by dehydration. Wear a dust mask when handling. DE comes in two grades: pool filter grade is chemically treated and poses a severe respiratory hazard for mammals, therefore should not be used. Our natural grade is the right type to use with animals. Do not exceed 2% of total ration. **OMRI**

***8479 A**: 50# for $35.00*

Redmond Agriculture 10 Fine Premium Trace Mineral Salt Minimum 95% NaCl. These salts accumulated as a great inland sea evaporated. The trace minerals provide a valuable supplement for livestock growth and health. Free-choice supplement; animals love it. A good choice for a salt source to complement salt-free mineral mixes. **OMRI**

***8482 A**: 50# for $20.00*

Kelp Meal - Organic Kelp is an excellent source of iodine and vitamin A and provides lower concentrations of dozens of other vitamins and trace minerals. Enthusiastically sought by livestock: I remember visiting a local farm several years ago where a loose goat followed me into the house so that she could stuff her head into the open bag of kelp sitting in the mudroom. Feed free-choice or mix in at 1–2% of total ration. Our feed-grade kelp is certified organic. **MOFGA**

***8263 A**: 5# for $15.00*
***B**: 50# for $90.00*
***C**: pallet 40 bags (2000#) for $2875.00 ★*

Molasses - Organic Molasses is a common and cost-effective feed additive used for many purposes. Add it to your animals' drinking water in cold weather, where it will give a helpful caloric boost and its pleasant flavor will encourage better water consumption and prevent impaction. If you cannot find good hay, a drizzle of molasses will improve the palatability of poor quality hay as well as increase the ration's energy and mineral content. A good option for treating ketonic cows. Molasses will act as a binder, reducing dust in finely ground feeds. Molasses may be fed liberally, but not free-choice: restrict to 10% of the ration or less. Certified organic. **MOFGA**

***8497 A**: gal (10#) for $13.50*

Apple Cider Vinegar - Organic Long used by livestock growers for a host of purposes. Anecdotal evidence praises apple cider vinegar as a preventative for ketosis and milk fever, a parasiticide, a coccidiostat and a treatment for mastitis. May improve the metabolizable energy of grain-based rations. Definitely knocks algae back in stock tanks in summer. Certified organic. **MOFGA**

***8500 A**: gal (10#) for $18.50 **B**: 55 gal (600#) for $750.00 ★*

Crystal Creek Paladin™ Spike Supplement designed to support piglets during the challenge of weaning. If you buy spring pigs, feed Paladin Spike for the first several weeks after they arrive on your farm. Formulated with fat-soluble vitamins, probiotics and yeast metabolites that stimulate immune response and bind to harmful organisms such as salmonella and *E. coli*. One pound can supply a dozen piglets for a month after weaning. **MOFGA**

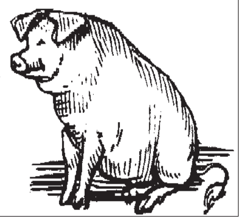
***8503 A**: 6# bucket for $135.00 ★*

Healthcare Protocol for Pigs

Pigs are hardy animals and unlikely to get sick if provided with a dry shelter, plenty of bedding, fresh air and nutritious feed. However, it is wise to vaccinate the outdoor pig for diseases that can be spread by wild animals or cause reproductive problems, and new mamas and babies can use a little extra support. This is the healthcare routine Alice followed at Treble Ridge Farm:

5 weeks pre-farrowing: Vaccinate sows for Streptococcus.
2 weeks pre-farrowing: Sows get Streptococcus booster.
Week of farrowing: Provide copious dry bedding.
Day of farrowing to 3 days post-farrowing: Restrict feed to gestation levels to prevent MMA (mastitis/metritis/agalactia syndrome). Add 1 cup of **8467** Crystal Pellets per day to reduce inflammation and for lactation support.
3 days to weaning: Gradually increase sow's ration to maintain good body condition. Add 1 cup of organic vegetable oil daily for extra energy.
3 days to 3 weeks: Provide chunks of turf to winter-born piglets in the winter to prevent iron-deficiency anemia. Not necessary for piglets on pasture.
7 days: Vaccinate piglets for Erysipelas and Leptospirosis. Castrate male piglets.
3 weeks: Vaccinate piglets for Circovirus and Streptococcus.
6 weeks: Weaning day! Booster shots for Erisypelas, Leptospirosis and Streptococcus.
6 weeks to 10 weeks: Add **8503** Paladin Spike to the feed at 2# per ton of starter ration (or 1/2–1 tsp per pig per day).

Read all about it in Alice's **NEW!** book, *Happy Pigs Taste Better*. (p. 154)



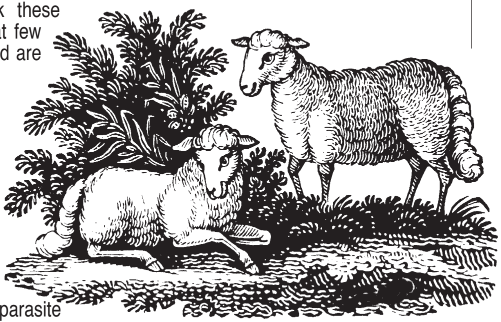
Useful Free Online Resources

Graze Magazine grazeonline.com Level-headed treatment of management-intensive rotational grazing on family-scale farms, much of it related to New England.
Maine Grass Farmers Network extension.umaine.edu/livestock/mgfn/ Resources and annual conference for grass-based livestock producers.
Northeast Organic Dairy Producers Association nodpa.com Not just for dairy farmers newsletters offer useful articles about growing forages and grain, and organic approaches to animal healthcare.
Animal Welfare Approved agreenerworld.org Certifies high-welfare pasture-based farms. Very useful certification guidelines and technical bulletins.

If shipping weight in parentheses is (0#), the item qualifies for free shipping!

PARASITE CONTROL

Internal parasites are the Achilles' heel of organic livestock production. All livestock producers battle these invisible feed thieves and suffer annual economic losses in the hundreds of millions from lost efficiency and associated health problems. Making the challenge more difficult, organic producers face strict limitations on the tools they can use to treat a parasite problem. While many natural substances are touted as parasiticides, including diatomaceous earth, apple-cider vinegar, garlic, black walnut hulls and various herbs, there is little or no scientific evidence to back these claims—in many cases what few studies have been conducted are not promising.

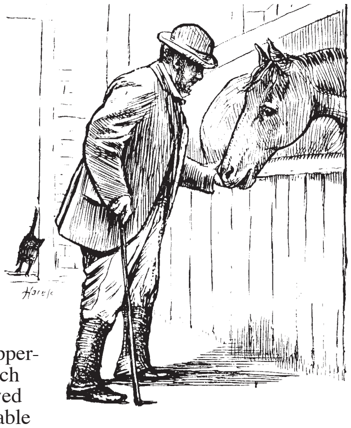


Good management is your first and best defense: genetic resistance and tolerance, long pasture rotations, good sanitation and top-quality nutrition all help prevent heavy infestations of parasites. If fecal testing does show an acute problem, we offer a number of NOP-compliant parasite treatments that have been successful in published trials.

Crystal Creek Pivot-FL™ We all know how wet, grey, muddy and unpleasant things can get in the fall and spring. As their bodies struggle to adjust to changing temperatures and damp conditions, animals are more susceptible to internal parasites and disease-causing organisms. Pivot-FL is formulated to support health in all livestock species during these challenging periods of seasonal transition. Yeast cultures stimulate immune response and immobilize harmful microorganisms; kelp and other mineral sources provide nutritional support; and probiotics support gastrointestinal health. **MOFGA**

***8512 A**: 5# bucket (5#) for $60.00*

Strong Animals Regano Liquid A formulation of oregano oil, which studies suggest may be useful for control of internal parasites, especially coccidia. A small-scale SARE-funded study, conducted by MOFGA's organic livestock specialist Diane Schivera, showed promising results for coccidia in sheep and goats and for *Trichostrongyles* (hair worms) and *Haemonchus contortus* (barber pole worm) in goats. A 2003 Greek study showed that oregano essential oil was an effective coccidiostat in young broilers. Bonus side effect: reduces methane emissions and improves feed efficiency in ruminants. A little goes a long way; see our website for dosage information. May be administered in the feed if a carrier (such as organic vegetable oil) is used to ensure thorough mixing. **OMRI**



***8542 A**: gal (10#) for $205.00 ★*

Vermi-Tox™ An herbal blend from Agri-Dynamics: includes garlic, thyme, peppermint and trace minerals. Preliminary research at California State University in 2010 showed that Vermi-Tox performed as well as injectable Ivermectin in reducing strongyle eggs in the feces of just-weaned goat kids. Aktan administered this product to some unthrifty lambs, and within days they shed some alarmingly large tapeworms. Very strong product: *follow administration rates strictly.* **MOFGA**

***8545 A**: quart (3#) for $60.00*

Copasure® Copper oxide wire particles in bolus form. Copasure was developed to treat copper deficiencies in cattle, but several studies show COWP effectively controls *Haemonchus contortus* (barber pole worm) in goats and sheep. Administer one bolus every 6 months. Consult a veterinarian and use caution if administering to sheep; while copper oxide is poorly absorbed compared to copper sulfate, copper toxicity remains a risk in many breeds of sheep. **MOFGA**

***8548 A**: 24 2g boluses (0#) for $28.00*
***B**: 12 4g boluses (0#) for $28.00*

Lice & Mange Wash A pleasant-smelling enzyme-based treatment for lice and mange in cattle, sheep and hogs. Not effective on ticks. Unlike diatomaceous earth, will not cause respiratory damage. Mix with an equal quantity of water immediately before use and spray animal thoroughly. Repeat in 7 days. **MOFGA**

***8554 A**: pint (3#) for $16.00*

No-Fly™ An oil-based botanical fly repellent for cattle, horses or other livestock pestered by flies. As a wipe-on or spray, may be applied full strength or diluted 1:1 with mineral oil. **MOFGA**

***8557 A**: gal (10#) for $93.00*

Affordable and informative fecal testing is available through MidAmerica Agricultural Research (midamericaagresearch.net). They charge $6–10 per sample and provide you with egg counts broken down by species of parasite.

MORE HEALTHCARE PRODUCTS

Crystal Creek Wound Spray A soothing mildly antibacterial topical spray for minor wounds and abrasions. May be used safely on mucous membranes: recommended for pinkeye. Formulated with garlic, calendula and comfrey. **MOFGA**

***8572 A**: 24 oz (3#) for $22.50*

Crystal Creek Prism™ Topical liquid for more challenging situations, including foot rot, puncture wounds, infected wounds and abscesses. Formulated with tea tree oil, rosemary, lemon, peppermint and cloves. **MOFGA**

***8575 A**: pint (3#) for $31.25*

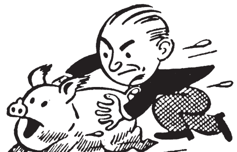
Crystal Creek Veterinary Dairy Liniment™ "Contrast therapy" liniment combines wintergreen, menthol and camphor in an aloe vera base. Supports circulation, soothes sore tissues and reduces inflammation. Reach for this liniment to prevent or treat muscle strains, udder edema or mastitis-related udder discomfort. **MOFGA**

***8581 A**: pint (3#) for $18.00*

MISCELLANEOUS LIVESTOCK SUPPLIES

Nipple Waterer Trying to water hogs in an open trough or bowl is an exercise in futility, as the hogs will think you put that water there to entertain them, not to keep them hydrated. Unless you really like carrying buckets, try this approach instead: thread one of these nipple drinkers through the side of a 55-gallon plastic drum and seal with JB Weld's WaterWeld or 3M's 5200 Marine Caulk to make an inexpensive, spill-proof, tug-proof and generally pig-proof waterer. In addition to drinking water, in hot weather provide your hogs with a wet area for wallowing.

***8587 A**: waterer (0#) for $9.00*

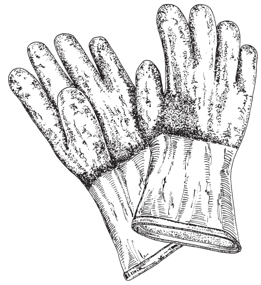


Hog Catcher A key tool for raising hogs outside of confinement. Cable loop slips over the nose and tightens around the upper jaw. Effectively restrains hogs of any size for vaccinations or veterinary treatment.

***8599 A**: hog catcher (3#) for $25.00*

Boot Covers Disposable boot covers are a simple, convenient and vital step to protect your livestock against harmful pathogens. Wear boot covers when visiting other livestock farms and provide boot covers to all visitors to your farm who enter areas where animals are kept. Common boot covers are short, don't protect properly against liquid contaminants, and rip easily. Our boot covers are made of tough waterproof 3-mil vinyl and extend to the top of most knee boots. Elastic top. One size fits most. Twelve pairs per pack.

***8602 A**: dozen pairs (0#) for $9.75*



Waterproof Insulated Gloves The all-around best winter chore glove: no more wet cold fingers! The flocked acrylic lining is soft and warm, and the triple-dipped PVC coating remains flexible even at single-digit temperatures. They extend loosely over the wrists to cover your jacket cuffs. Generously sized: there's room to wear liner gloves in very cold weather. (Garden gloves are on page 149.)

***8605 A**: one pair (0#) for $11.75*

Neem and Karanja Oils for Livestock Skin Health

Neem (**8660**) and karanja (**8663**) oils can be used topically on livestock and pets as a parasiticide and for general skin care. Studies show neem can control lice, mites, fleas and other ectoparasites as an antifeedant, landing repellent and fecundity reducer. Aside from its better-known antifungal and antibacterial properties, neem oil also has anti-inflammatory and analgesic qualities that make it an effective skin therapy for mammals. Karanja oil shares many of these pest- and disease-fighting properties and works synergistically with neem to improve its efficacy. Mix 1 oz neem oil (or $^1/_2$ oz neem and $^1/_2$ oz karanja) with $^1/_2$ gallon of warm water, using soap to emulsify. Massage into animal's skin, fur or fleece, keeping it away from eyes. Let sit for half an hour and wash off. Repeat every 2 weeks or as needed. We use it on our sheep after spring shearing and observe a lasting effect through the grazing season. One cautionary note: if ingested in significant amounts, neem oil may have a negative effect on conception. Learn more about neem and karanja on page 136.

KARANJA
OIL

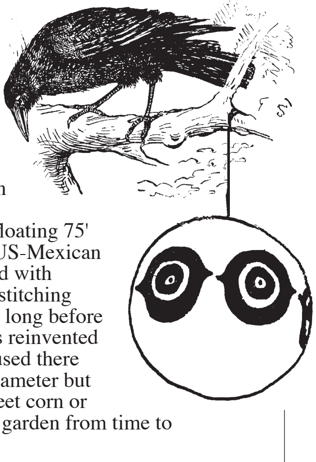
PLANT PROTECTION & PEST CONTROL

All these products, ranging from preventive measures such as bird-scaring balloons and flash tape, to last resorts such as copper or PyGanic, are commonly used in sustainable farming and gardening.

Also consider row cover for excellent protection from insects. See **8874-8876** for floating row cover.

ORCHARD AND GARDEN PEST PATROL

The products in this section provide a degree of pest control and will help certified growers meet the requirements of rule 205.206 of the National Organic Program.

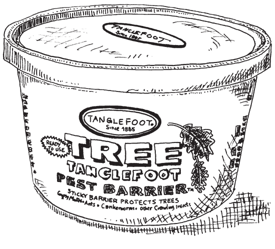


Bird-Scaring Balloon Successfully tested against some of Maine's toughest crows! Multi-colored strips around a menacing metallic eye. According to Cherokee artist Kade Twist, "The iconography on the balloon is indigenous iconography It's called an 'open eye' and it's a pattern used from South America to Canada… Another thing is the colors. It just so happens that the balloons use Indian medicine colors." Kade and two other artists created an installation piece called "Repellent Fence" consisting of 26 inflatable bird-scaring balloons 10' in diameter floating 75' above the ground in a 2-mile line bisecting the US-Mexican border. People on both sides of the border helped with the installation to create a "metaphorical suture stitching together cultures that have inhabited these lands long before borders were drawn." The "open eye" motif was reinvented in Japan as a bird-scaring device and is widely used there for that purpose. Our balloons are only 14" in diameter but may deter birds from migrating toward your sweet corn or blueberries. Most effective if moved around the garden from time to time. Protects a 15–20' radius.

8615 ***A**: balloon (0#) for $10.00*

Birdscare Flash Tape® Silver and red metallized 7/16"x290' plastic tape is a cost-effective way to protect crops from bird damage. Suspend tape in a loose spiral above the crop. Tape flashes and flickers in the wind to resemble fire. Very effective against flocking birds and crows, less so against robins, sparrows and their ilk. Don't apply too early or birds may get used to tape.

8618 ***A**: flash tape (0#) for $8.00*

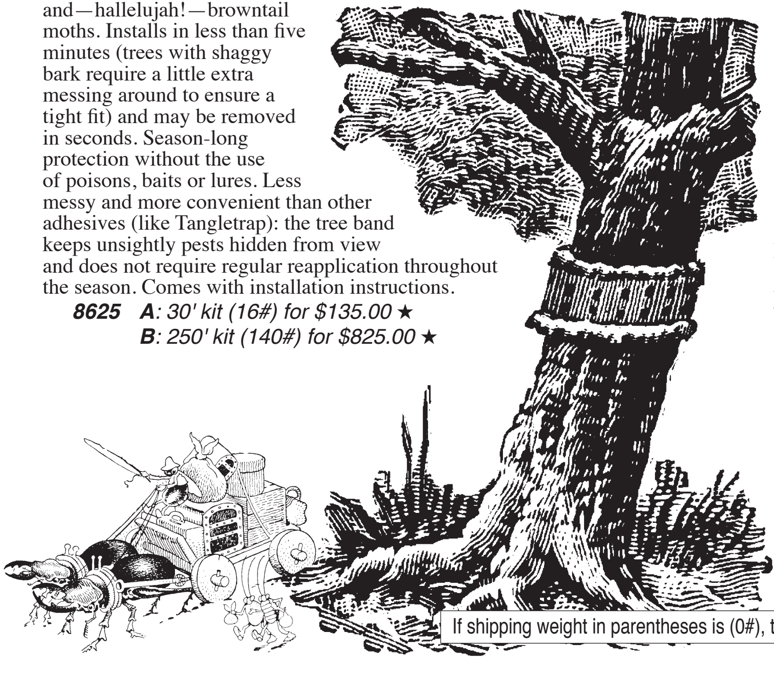

TANGLEFOOT Since 1885
READY TO USE
TREE TANGLEFOOT PEST BARRIER™
STICKY BARRIER PROTECTS TREES
Gypsy Moths • Ants • Cankerworms • other Crawling Insects

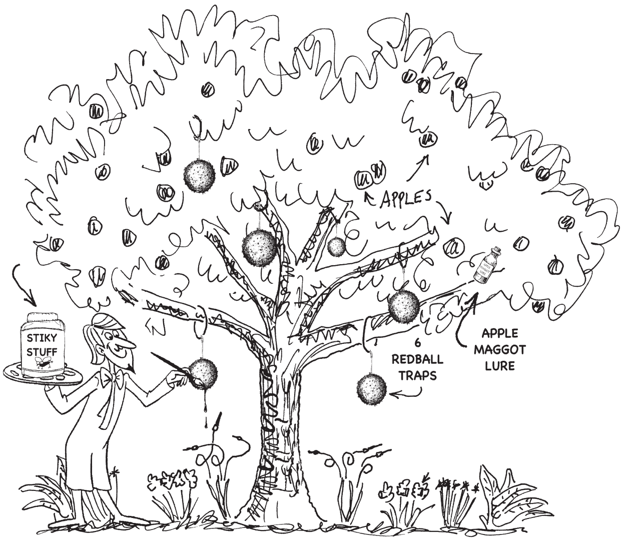
Tree Tanglefoot Insect Barrier® A very sticky substance made of castor oil, natural gum resins and vegetable waxes. Prevents climbing insects from reaching foliage, buds and fruit. Tightly wrap a piece of stiff 3" wide paper around the trunk a foot or two off the ground. Tape this "sleeve" to itself but not to the tree. Smear Tanglefoot on the paper. (Applying Tanglefoot directly to bark could damage the tree.) 15 oz spreads a 3" wide band over 14' of paper. **OMRI**

8624 ***A**: 15 oz tub (0#) for $17.00*

BugBarrier Tree Bands Traps insect pests that crawl up the trunks of trees, including spring and fall cankerworms, spotted lanternflies, winter moths, forest tent caterpillars, and—hallelujah!—browntail moths. Installs in less than five minutes (trees with shaggy bark require a little extra messing around to ensure a tight fit) and may be removed in seconds. Season-long protection without the use of poisons, baits or lures. Less messy and more convenient than other adhesives (like Tangletrap): the tree band keeps unsightly pests hidden from view and does not require regular reapplication throughout the season. Comes with installation instructions.

8625 ***A**: 30' kit (16#) for $135.00 ★*
***B**: 250' kit (140#) for $825.00 ★*





Red Ball Trap Use to monitor and trap apple maggot flies. Sturdy 3½" reusable hollow red plastic ball with hook and wire for hanging. To significantly reduce apple maggot damage, hang 1–2 traps per dwarf tree, 2–4 per medium tree, or 4–8 per large tree. Coat traps with Stiky Stuff (below) and hang about eye-level with 18" of clearance between them and any foliage so insects can get a good look at them.

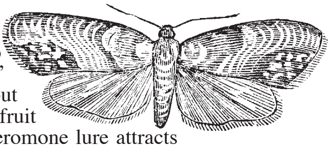
8627 ***A**: ball trap (0#) for $5.50*

Stiky Stuff All-weather adhesive used to coat red balls for monitoring and trapping insect populations. Sticky and odorless coating. To remove, use a blunt scraper and wipe with a paper towel or rag after each swipe. Then massage in mineral spirits, baby oil or CitraSolv with a cloth and wipe off. 8 oz covers approx. 2 sq ft, which our staff geometer calculates will coat at least 7 red ball traps. **AYC**

8630 ***A**: 8 oz (0#) for $15.00*

Apple Pest Kit Six red ball traps, apple maggot lure (also available separately on our website) and a jar of Stiky Stuff. Provides pest monitoring for up to 6 trees or pest control for 1–3 trees.

8636 ***A**: kit (5#) for $45.00*



Codling Moth Trap & Lure Awfully cute name for an awfully harmful pest! Codling moth (*Cydia pomonella*) is a pest that damages fruit of apple, pear, walnut, and quince. It is *the* "worm in the apple." The larva (caterpillar stage) typically bores through the blossom end or the stem end of the fruit, eating its way to the center and then eating an exit route that fills with frass. Codling moth goes through two generations in most regions of the U.S. The first generation can contribute to fruitlets falling during "June drop." The second generation damages fruit but does not induce dropping, so affected fruit must be culled at harvest. The sex pheromone lure attracts males only; use for monitoring (as opposed to reducing population and fruit damage). When moths start to collect in the traps, that is the time to start spraying an organic insecticide: *Bacillus thuringiensis* (**8753** Dipel or **8756** Safer Caterpillar Killer) or Spinosad (**8759** Entrust or **8762** Monterey Garden Insect Spray). Use 1–2 traps per tree, depending on the size of the tree. Set out at bloom time and keep traps in trees through August, replacing every 4 weeks. Installation instructions included. Set of 2 traps and 2 lures. **NEW!**

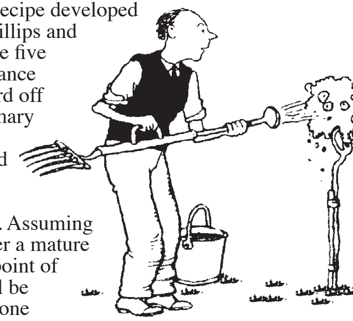
8646 ***A**: traps & lures (0#) for $15.00*

Sticky Strips Conventional and organic growers alike commonly use sticky strip traps as part of their integrated pest management programs, to monitor the presence and population level of insect pest species to determine when populations are high enough that crops will suffer significant damage and treatment will be economically justifiable. Used in high concentrations on small plantings, sticky strip traps can even control pests all by themselves. Different colors attract different insects. Choose **8648-A** yellow traps for aphids, cucumber beetles, fungus gnats, corn root worms or whiteflies; use them with ammonium bait enhancers (available on our website) for apple and blueberry maggots. Choose **8648-B** blue traps for thrips and leafminers; these are uniquely attracted to blue, while most other insects avoid it.

8648 ***A**: yellow traps, bundle of 10 (0#) for $16.00*
***B**: blue traps, bundle of 10 (0#) for $16.00*

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

ORCHARD AND GARDEN HEALTH



Holistic Orchard Spray Kit To promote the health of your home orchard, this kit contains: 1 gal fish hydrolysate, 1 qt neem oil, 1 qt EM-1 (effective microbes), 1 gal liquid kelp, and 1 pint of karanja oil. These are the key ingredients in the Holistic Spray recipe developed and recommended by Michael Phillips and the Holistic Orchard Network. The five components work together to enhance tree and fruit growth and help ward off disease, especially during the primary infection window in spring. Includes all the ingredients needed except biodegradable dish soap and molasses (though we do sell molasses separately on page 133). Assuming a rate of ~1½ gal of spray to cover a mature tree on standard rootstock to the point of runoff, the amounts in this kit will be enough to cover about 7 trees for one year. This will vary depending on your situation. Please see below for kit instructions.

***8657 A**: kit (25#) for $120.00 ★*

Holistic Orchard Spray Kit Guide

Renowned organic orchardist and author Michael Phillips recommends a "holistic" spray regimen (see kit above) to help prevent disease and enhance both tree and fruit growth. For a more detailed discussion of these ingredients and how they work together to serve your fruit trees, see Phillips' book *The Holistic Orchard* (**9624**).

Fish Hydrolysate (8289): Feeds soil and arboreal food web.

Neem Oil (8660): Deters pests and disrupts their life cycles. Neem also stimulates the tree's immune system, gives nutrients to foliage and feeds the arboreal food web. Caution: pears can have a phytotoxic response to neem oil, especially after bloom, so substitute with karanja oil if you're spraying lots of pears.

Karanja Oil (8663): Works synergistically with neem. Enhances immune-boosting phytochemistry of the mix. Also deters foliar-feeding pests like aphids without affecting pollinators.

EM-1 (8185): A probiotic inoculant that colonizes the branches and fruit with beneficial microbes to promote fruit growth and disease resistance. See our website (fedcoseeds.com/ogs) for instructions to "activate" EM-1.

Liquid Kelp (8269): Promotes growth and helps trees adapt to stress.

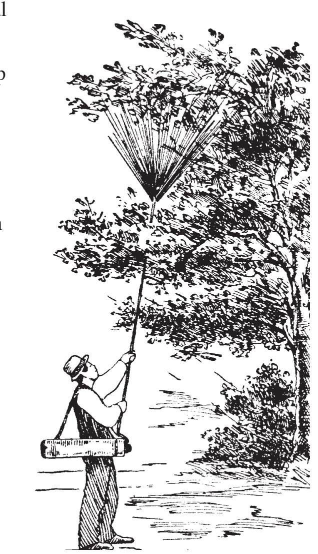
RECIPE:

Makes a 4-gal ready-to-spray batch. Please read through Spray Schedule below, and note that not all ingredients are used in every application. Mix in a 5-gal bucket in this order:

– ¼ cup (2 fl oz) Neem Oil—warm up to liquefy.
– 2 Tablespoons Karanja Oil
– 1 teaspoon biodegradable dish soap—stir to emulsify neem.
– 1 quart warm water
– ½ cup blackstrap molasses (then stir again)
– 1¼ cups Fish Hydrolysate
– ⅓ cup Liquid Kelp
– 1¼ cups activated EM-1
– Add water until you reach the 4 gallon mark, then stir one last time.

SPRAY SCHEDULE:

Coat trees including the trunks to the point of runoff, about 1½ gal per mature fruit tree. We recommend using the Solo Deluxe 4-Gallon Sprayer (**9231**). Treat this schedule as a starting point; every site is different and requires a custom program. For example, trees with cedar apple rust or brown rot issues require additional spraying for effective management.

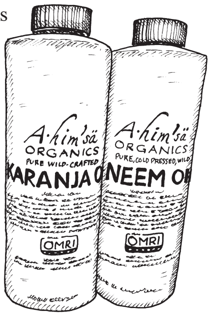


1. **When green leaf tips emerge:** Fish, neem, karanja, EM-1 and kelp (all ingredients). Fish, neem and karanja rates can be doubled for this first spray, except on pears.
2. **When buds turn pink:** All ingredients.
3. **When blossoms open (optional):** ONLY EM-1, kelp and half-portion of karanja. To help prevent apple scab and fireblight, to increase Brix, and to attract pollinators.
4. **When petals fall:** All ingredients.
5. **7–10 days after petals fall:** All ingredients.
6. **Post-harvest, after about half the leaves have fallen:** Fish, neem, karanja and EM-1. Spray trees as usual, but also aim at the ground to hasten leaf decomposition.

Questions?
Send an email to:
john_paul@fedcoseeds.com

Ahimsa Organics® Neem Oil Promotes the health and vitality of trees and plants. Neem has long been recognized for its antifungal, antibacterial and antiparasitic properties. Neem's azadirachtin content deters a wide range of insect pests, disrupts their life cycles, and often leads to their mortality. For a processed neem product registered as a pesticide, see **8735** AzaMax. Spray for full leaf coverage every 7–10 days as needed for suppressing disease or insect pests. Research indicates that pest and disease management is enhanced when neem oil is mixed with **8663** Karanja Oil. To make a spray, mix 1 oz warmed neem oil (or ½ karanja and ½ neem oil) with 2 tsp biodegradable dish soap, and add to 1 gal lukewarm water. Avoid spraying neem when bees are pollinating as it is harmful to larvae and developing grubs. Also see **8657** Holistic Orchard Spray Kit. **MOFGA**

***8660 A**: quart (3#) for $35.00 **B**: gal (10#) for $120.00 ★*

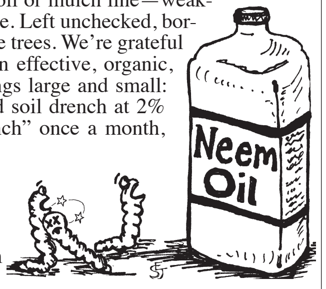

A·hím'sä ORGANICS PURE WILD-CRAFTED KARANJA OIL
OMRI
A·hím'sä ORGANICS PURE, COLD PRESSED, WILD NEEM OIL
OMRI

Ahimsa Organics® Karanja Oil Eastern tradition and Western utilitarianism meet again! Enlightened growers of veggies, fruits and medical ganja have convinced us to bring back karanja oil for its noteworthy pest- and disease-fighting properties. Pressed from the seed of the pongam tree of India, the oil is rich in several bitter flavonoids that stimulate plant immune function. Numerous studies have shown the oil to prevent many pests from feeding and laying eggs and to kill pests such as mites, aphids and leafminer larvae. Studies also show karanja works synergistically with a number of pest management sprays especially **8660** Neem Oil to significantly improve their efficacy, and it lasts longer on plants than other botanical insecticides. Michael Phillips "completely recommends" using karanja in the Holistic Orchard Spray regime. It may be used instead of neem for plants like pear trees that can have a phytotoxic response to neem oil. It's also safer for bees, containing no azadirachtins. Furthermore, karanja remains a liquid at 40° or colder, making it easier to mix than neem. Very safe to handle and spray. To make a spray, mix 1 oz karanja oil (or ½ karanja and ½ neem oil) with 2 tsp biodegradable dish soap, and add to 1 gal lukewarm water. **OMRI**

***8663 A**: quart (3#) for $35.00*
***B**: gal (10#) for $120.00 ★*

News Flash: Neem Naturally Neutralizes Northeast's Nasty Nafarious Nemesis!

In many parts of central and northern New England, the roundheaded apple tree borer (*Saperda candida*) is the #1 enemy of young apple, crabapple and quince trees. The larvae tunnel throughout the wood of the trunk—usually just below or just above the soil or mulch line—weakening the trunk to the point of breakage. Left unchecked, borers usually mean death for young apple trees. We're grateful that Michael Phillips has identified an effective, organic, nontoxic and easy defense for plantings large and small: pure neem oil, sprayed as a trunk and soil drench at 2% concentration. Spray this "neem drench" once a month, June–September.



To prepare a 4-gallon batch of the 2% neem oil drench: Combine 10 fl oz warmed neem oil with 4 teaspoons biodegradable dish soap. Stir vigorously to emulsify. Add warm water until you reach the 4-gal mark, then stir again.

Apply the spray generously, making sure to completely drench the trunk up to the the first branch (but not the branch itself), as well as the soil at the base of the trunk. Be especially generous when spraying around the base of the trunk: spray enough so that it pools and then slowly soaks in (borer larvae often dwell in the tree just below the soil surface).

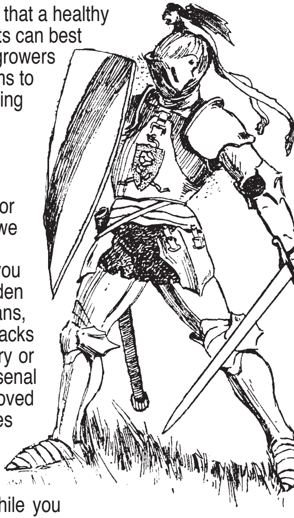
CAUTION: Do not apply this 2% neem spray to leaves—it could damage them. Be sure to clean sprayer tank and flush line after use.

Recent small-scale trials suggest that painting *undiluted* neem oil (straight from a warmed bottle) onto the base of tree trunks may be the best borer management technique yet. Paint undiluted neem generously in early June; no need to reapply until next year.

Please note that although neem is a powerful tool in the battle against borers, we still recommend getting on your hands and knees to inspect your young apple trees for frass and tunnels at least once a year. If you notice evidence of borer activity, locate the hole or soft spot in the trunk and dig out the larva with a wire. Cut away soft spongy pockets with a sharp knife. Even serious carving is less harmful to the tree than leaving any larvae alive inside.

Michael Phillips now recommends that when you're on borer duty, bring along a butter knife and a container of solidified neem oil (thick as butter at 60°). If you find borer damage and cut away the affected tissue with a sharp knife, slather on the neem oil to fill the cavity. According to Phillips, "bark tissues and pores in the wood will carry azadirachtins to the borer (if indeed missed), and arrest its further development…the fats in the neem will hasten callusing of the wound." If the site of this surgery is near the soil line, cover it up with soil, and "know you've done everything possible to deter this curse."

PLANT PROTECTION & LAST RESORTS



As with so many things, pest management starts in the soil. The fundamental premise of organic agriculture holds that a healthy living soil supports plant health, and healthy plants can best withstand disease and insect pressure. Organic growers also try to mimic and work with natural ecosystems to deflect problems by avoiding monoculture, choosing planting times judiciously, nurturing paradisiacal hedgerows where beneficial insects may flourish, creating strains of tomato impervious to late blight in meticulously designed on-farm breeding programs, and generally making life a living hell for pathogens and pests. If you do all this perfectly, we promise you will never need to touch a pesticide.

Except when you do. Because sometimes, you might. It can take years to build top-quality garden soil, and sometimes, despite all your best-laid plans, some aspect of management falls through the cracks and problems arise that may threaten your pantry or your livelihood. So organic growers do have an arsenal of pesticides at their disposal. Pesticides approved for organic production differ from most pesticides in that they are derived from natural materials and—perhaps more importantly—they are less persistent (some conventional pesticides have half-lives measured in years) and less toxic (while you should always read and follow labels and avoid breathing, ingesting, or bathing in pesticides, you don't need to dress like a beekeeper-alien hybrid to use organic pesticides). If potato beetles are blowing the battle trumpet at your garden's gate, find your answering battle cry below.

Products in this section come with detailed instructions on their labels. Contact us in case you don't receive the attached booklet or if the label is illegible.

We cannot ship any pesticides to California. Their state government wishes to charge us an ungodly amount of money to do so.

Monterey Bi-Carb Old Fashioned Fungicide Microencapsulated potassium bicarbonate for homeowner control of powdery mildew on all common crops and ornamentals. When Great-Grandma got powdery mildew on her roses, she reached for a box of baking soda (sodium bicarbonate). Potassium bicarbonate is a more effective and less phytotoxic version of this old-fashioned remedy. Use a sprayer that can reach the undersides of leaves (like our **9223** Solo 2L Hand Sprayer), because this product must come in contact with fungal cells to be effective. Less toxic than copper sprays, which are the only other organic fungicide that can cure an existing outbreak. Not registered for commercial use; commercial growers should use MilStop (below), which has the same active ingredient. EPA reg. 54705-10.

***8665 A**: 4 oz (0#) for $11.00*

MilStop® Broad Spectrum Foliar Fungicide. A potassium bicarbonate formulation to prevent powdery mildew, Alternaria blight, Anthracnose, black spot, Botrytis blight, Cercospora leaf spot, downy mildew, Phomopsis blight and Septoria leaf spot. Effective against flyspeck on apples. Provides curative control of powdery mildew as well! Apply at 2½#/acre every two weeks as a preventive, 5#/acre weekly to cure an existing infestation of powdery mildew. Garden rate: 2–4 Tbs/2 gal water for 1000 sq ft. Works by dessicating fungal spores and altering pH levels on the leaf surface. Safe for bees. EPA reg. 70870-1-68539. **OMRI**

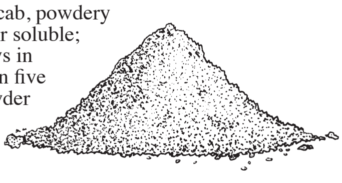
***8666 A**: 5# for $70.00*

Bonide® Liquid Copper Concentrate A copper fungicide for the home gardener. Copper is a very effective fungicide, but regular use may result in problematic concentrations of copper in the soil or plant tissue: as always, we advise regular soil testing! The recommended dosage is 1½–2 oz/gal water. Apply enough to wet the whole plant thoroughly: not systemic, requires direct contact to work. Repeat application every 7–10 days and increase the dosage in prolonged wet periods or if signs of disease increase. **Please visit our website for other copper products for commercial-scale producers.** EPA reg. 67702-2-70051. **AYC**

***8672 A**: pint (3#) for $21.50*

Is that pesticide registered in your state?

Each state treats potentially dangerous items differently. Like alcohol and open-carry laws, pesticide registrations are different everywhere. We cannot ship a pesticide to a state where it is not registered. Before buying or using any pest- or disease-control product, be sure it is registered for use in your state and, if you are a commercial grower, registered for commercial production. Purdue University has information for most states at **state.ceris.purdue.edu/.** You may look up products by name, registration number or active ingredient. Contact information is provided for states that don't participate in the website.



Micronized Sulfur Used to control scab, powdery mildew and leafspot. Sulfur is not water soluble; the smaller the particle the better it stays in suspension. These particles are less than five microns. To apply, thoroughly mix powder with water and keep the mix agitated constantly or apply as a powder. EPA registration 4-62. **Nat'l List.**

***8684 A**: 1# (0#) for $15.00*

Safer® Garden Fungicide A liquid concentrate for home gardens, 12% elemental sulfur, a natural fungicide. Use for control of leafspot, rust and powdery mildew on house and garden plants, trees and shrubs. Dilution rates vary depending on the task; use 1–2 oz/gal, which treats 250–350 sq ft. EPA reg. 42697-37. **AYC**

***8687 A**: pint (3#) for $15.00*

THAT® Liquid Sulfur (52% S) Takes the prize for Most Infuriating Product Name—try asking the warehouse crew "Have you seen THAT?" But we keep it around because it is easier to use in sprays and suspensions than micronized sulfur. Two to four well-timed applications can be effective on apple scab when combined with good orchard sanitation practices. Each gallon contains 6# sulfur. EPA reg. 57538-5. **AYC**

***8690 A**: 2.5 gal (25#) for $71.50*

Regalia® Biofungicide Put invasive plants to good use! Regalia's active ingredient is extract of giant knotweed, an aggressive plant invader in many countries around the world. Sprayed on your crops, it induces systemic resistance, stimulating biochemical pathways that strengthen the plant structure to fight pathogenic fungi. Reapply every 7–14 days to protect new growth. May also be applied as a soil drench or through drip irrigation to improve root quality and protect against soil-borne pathogens. Labeled for a broad range of fungal diseases in most edible crops. Definitely worth a try to prevent late blight in your potatoes! Various university trials have shown Regalia to be effective for downy and powdery mildew in cucurbits; bacterial spot, septoria leaf spot and powdery mildew in field tomatoes; mummy berry in blueberries; and powdery mildew and Botrytis bunch rot in grapes. Cannabis growers use it as a drench administered with liquid nutrients to prevent fungal problems, which is probably a good idea since you really don't want to be smoking copper-based fungicides. Safe for bees. Dilute at 1–4 qt/100 gal water, depending on the application. EPA reg. 84059-3. **OMRI**

***8693 A**: 2.5 gal (25#) for $235.00 ★*

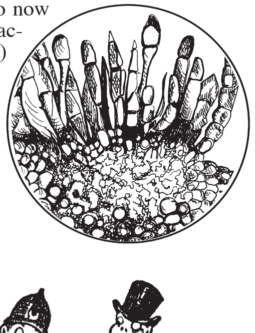
Actinovate® Biological Fungicide Supplies beneficial bacteria *Streptomyces lydicus*, which will colonize the roots or foliage of plants and provide protection against disease and soil pathogens. Controls late blight, pythium, rhizoctonia, fusarium, verticillium, powdery and downy mildew, and other fungal diseases. Dry powder. Apply as a root drench or foliar spray: 1–2 tsp/2 gal water/200 sq ft; or 3–12 oz/150 gal water/acre. EPA reg. 73314-1. **OMRI**

***8702 A**: 2 oz (0#) for $27.50 **B**: 18 oz (0#) for $150.00 ★*

Monterey Complete Disease Control Biofungicide/Bactericide *Bacillus amyloliquefaciens* formulation for broad-spectrum control of bacterial and fungal diseases on vegetables, fruits, nuts, ornamental trees, shrubs, flowering plants, houseplants and tropical plants grown in and around home gardens or home greenhouses. Not for commercial use. Effectively controls anthracnose, alternaria leaf spot, botrytis, cercospora and powdery mildew. Also helpful for downy mildew, early blight, late blight, fire blight and scab, though unlikely to offer a complete cure for these problems. EPA Reg. 70051-114-54705 **OMRI NEW!**

***8709 A**: quart RTU (3#) for $18.00*

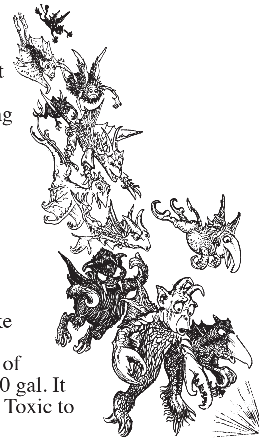
Cease® Biological Fungicide Why, oh why do we have so much trouble keeping *Bacillus subtilis* products on the shelf? **We had to nix Serenade** because we don't want to give money to Bayer; Companion was great but then the manufacturer went into some endless relabeling process and we haven't been able to get it. So now we're trying Cease, which is the same great active ingredient (in this case the QST 310 strain) but packaged as an aqueous suspension. A broad-spectrum preventative product for the control or suppression of many important plant diseases. May be used as a foliar spray or as a drench at 1 gal/100 gal water/acre. Maybe *B. subtilis* backorders will cease now? EPA Reg. 264-1155-68539. **OMRI NEW!**



***8710 A**: gal (10#) for $84.00*

USDA NOP rule concerning disease and pest control

Caution certified-organic growers: Before using any of these products for pest or disease control, you must have followed the National Organic Program rule 205.206(e). A product being labeled here as allowed is not sufficient to meet standards for organic certification.



Organic JMS Stylet-Oil® High-grade mineral oil for control of powdery mildew, scale, mites and other insects on trees and vegetables. Use as a dormant or summer oil. Kills mildew on contact and protects sprayed surfaces for 10–14 days. Controls plant-feeding mites, leafhoppers, leafminers, fall army worms and corn earworms. Spray at 3 qt–2 gal/100 gal water depending on application. EPA reg. 65564-1. **OMRI**

***8711 A**: gal (10#) for $48.00*
***B**: 2.5 gal (25#) for $85.00*

ThermX™ 70 A wetting agent and spreader-sticker, made from a liquid concentrate of 70% yucca solids. Increases the longevity and effectiveness of pesticide applications and forces hydrophobic potting media (like dry peat moss) to more readily absorb water. Use in your foliar feeding program to improve the absorption of nutrients and increase resistance to stress. Mix 8 oz/100 gal. It foams a lot, so add as the last ingredient to a tank mix. Toxic to fish in high concentrations. **OMRI**

***8714 A**: quart (3#) for $40.00*

Miller® Nu Film® P Spreader/Sticker Spreader-stickers increase the longevity and effectiveness of pesticide applications. Forms a sticky elastic film that holds the application in contact with leaf surfaces. Can withstand heavy rainfall for 7–10 days, reducing the need to reapply. Will not clog or foam. May be applied to all crops and in all spray applications, 4–6 oz/100 gal water. **OMRI**

***8717 A**: gal (10#) for $85.00*

Dodging an un-fun guy

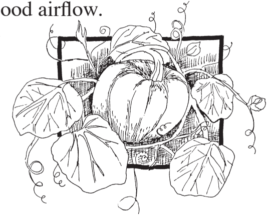
Whether it's *Fusarium* and *Pythium* lurking in your soil, or powdery mildew and late blight blowing in on the wind, pathogenic fungi can cause poor germination, stunted growth, reduced yields, inferior eating quality, cosmetic blemishes, poor storability and melancholy.

Organic growers have a number of strategies for preventing or treating outbreaks of fungal disease. For economy, efficacy and environmental safety, it helps to understand your options.

Cultural Prevention

First try to manage fungal problems without reaching for pesticides:

- Choose improved crop varieties that are resistant to disease.
- Choose high-quality brands of potting soil and compost.
- Do not put diseased plant material in your compost pile.
- Give plants adequate spacing for good airflow through the vegetation. This includes proper weed control. For trees and a few horticultural crops (like tomatoes), pruning helps to maintain good airflow.
- Choose drip irrigation instead of overhead irrigation to reduce moisture on the leaves. Or in smaller gardens, hand-water thoughtfully to prevent over-watering.
- Clean your tools and greenhouse surfaces. High-quality brands of potting soil very rarely carry pathogens, but even clean potting soil is easily contaminated by dirty tools, trays or workbenches.



Preventive Treatments

If you've been hammered by *Botrytis* a couple years running, or if your extension office is reporting late blight in your area, it may be time for a sharper weapon. Many organic fungicides work best as preventive treatments; timely applications will prevent a problem, but by the time you see the first slimy leaves it's too late. These products are more environmentally friendly than control treatments:

- Biological controls (such as **8702** Actinovate and **8710** Cease) have two primary modes of action. They may colonize the leaf surface and outcompete pathogens; or they may produce exudates that are directly harmful to the pathogens.
- Giant knotweed extract (**8693** Regalia) stimulates the plant's immune system.
- Elemental sulfur (**8684** Micronized Sulfur, **8687** Safer Garden Fungicide or **8690** THAT Liquid Sulfur) prevents spore germination. (Some plants, including cucurbits, are sensitive to sulfur.)

Control Treatments—the last resort.

The pumpkin leaves are crumpling and the dreaded "water-soaked lesions" of late blight have appeared on the potatoes—quick, do something! (Or throw in the towel and take a vacation.)

- Potassium bicarbonate (**8666** MilStop) kills pathogens and spores by a combination of osmotic pressure, pH and specific carbonate and bicarbonate ion effects. Most effective as a preventive, but may have curative control of powdery mildew.
- Copper products, such as **8672** Bonide, are the only pesticides permitted in organic production that can cure an existing outbreak of most fungal diseases. Copper products should be used only as a last resort: they are mildly toxic to bees and should not be applied to flowering plants, and repeated use of these products can cause an unhealthy buildup of copper in your soil, which is difficult to reverse.

Concern® Diatomaceous Earth Crawling Insect Killer Prehistoric crustacean powder! The sharp edges cut into insects' bodies and cause death by dehydration. Insects cannot develop resistance to this mode of action. Especially popular for cutworm protection: just sprinkle around the base of your seedlings. Also useful for ant or flea trouble indoors. **OMRI**

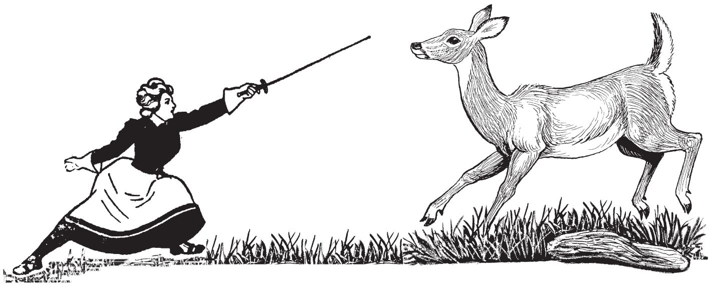
***8719 A**: 4# for $15.00*

NovaSource Surround® WP This crop protectant is 95% kaolin clay, but this ain't your mama's pottery-grade kaolin. It undergoes a patented process of centrifuging and filtering that delivers a critical particle size of 1.4 microns and a pure white color. Prevents insects from recognizing their targets, and, if they land, inhibits their access to the plant's surface and causes irritation and excessive grooming. Particle sizes larger than 1.4 microns do not form an effective barrier to insects, and impurities in unrefined kaolin may injure plant health. Recommended for controlling European apple sawfly, codling moth, plum curculio, Japanese beetle, leafhopper, Colorado potato beetle, thrips and other maleficial insects on fruit crops and field crops. Effective against cucumber beetles on cucurbits. The white surface also reflects sunlight, preventing sunburn and heat damage. Michael Phillips at Lost Nation Orchard estimates that one 25# bag is sufficient to treat 10 fruit trees for one season. Begin application before petal-fall. Apply 2–3 times the first week to build up a good coating and then every 10–14 days or as the film weathers or new growth appears, more frequently in rainy weather. Maintain a good coat until plum curculio season ends, around June 30 in central Maine. Use 25#/50 gal water for concentrated use; 25#/100 gal water for diluted spray, ½#/gal water in hand and backpack sprayers. EPA reg. 61842-18. **OMRI**

***8720 A**: 25# for $65.00*

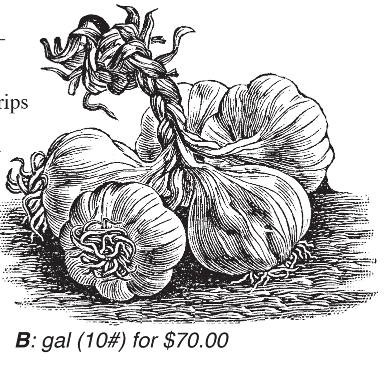
Deer Stopper® A mixture of rotten eggs and essential oils deters deer by taste and smell. Dries clear and odor free (to human noses) and will not wash off in the rain. Lasts up to 30 days. Also good for marking the perimeter of gardens. May be applied in any climate or weather as long as the sprayer does not freeze and clog. Apply directly to ornamentals; on edible crops, apply as a perimeter spray. Dilute 1:9 with water. Exempt from EPA registration. **MOFGA**

***8723 A**: quart (3#) for $45.00 **B**: gal (10#) for $125.00 ★*



MoleMax® Mole & Vole Repellent 10% castor oil in a base of fuller's earth. Whether you have moles tunneling in your lawn, groundhogs eating their way through your vegetable garden, or voles girdling your apple trees, this is a simple but effective tool against damaging varmints. Be sure to follow the package instructions! Start by applying the powder to an area unaffected by the pests, and then expand the application to push them out of the area you wish to protect. Rodents are stubborn: may require regular applications for continued effectiveness. One bag protects up to 5000 square feet. If armadillos are a problem for you, it supposedly works against them, too. Exempt from EPA registration. **AYC**

***8726 A**: 10# for $28.00*

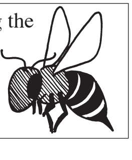


Garlic Barrier® 99.3% garlic juice—just mix with water or oil and spray to repel insects such as ants, aphids, grasshoppers, spiders, spider mites, thrips and whiteflies. Several studies have suggested that garlic oil has fungicidal properties. One warning: this stuff stinks and is best mixed outdoors. The odor doesn't last and the taste of the vegetables is not affected. Quart covers 80,000 sq ft. Gallon (Garlic Barrier AG+) covers 20 acres. Exempt from EPA registration. A-size **MOFGA**, B-size **OMRI**

***8729 A**: quart (3#) for $12.00 **B**: gal (10#) for $70.00*

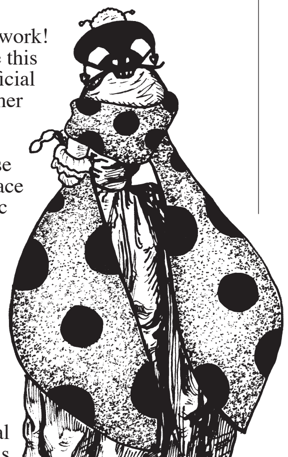
Check our website for a chart summarizing the safety of these pesticides for pollinators:

Go to fedcoseeds.com/ogs, click on Growers' Library, then Pesticides and Pollinator Safety.



Monterey All-Natural Mite & Insect Control RTU Rosemary and clove essential oils for control of mites (including the dreaded spider mite), whitefly, aphids, scale, and a variety of insects. Studies have shown that rosemary oil can cause complete mortality of spider mites at concentrations that are not phytotoxic to the host plant; go easy on the stuff, though, because a very heavy application can damage plants. A light spray will suffice. It also repels the mites from uninfested areas and disrupts their egg-laying behavior. Popular with indoor growers. Exempt from EPA registration. **AYC**

***8733 A**: quart RTU (3#) for $11.75*



Ladybug Attractant Let ladybugs do your dirty work! Instead of reaching for pesticides every season, use this pheromone lure to attract ladybugs and other beneficial insects that will eat aphids. plant lice, scale, and other pests. Wearing gloves, remove the lure from the packaging and remove the cap. Attach the twist tie and hang the lure from any plant in your greenhouse or garden. Each lure covers at least a 6' circle; replace lures after two to three weeks. As with most holistic solutions, this is not a quick fix for existing pest outbreaks! Also, ladybugs and other beneficials are clever at hiding from predators, so you may not be able to notice a sudden influx of mercenary insect soldiers. However, after a few weeks you should see a noticeable drop in aphid damage. Do not use in conjunction with broad-spectrum pesticides: you don't want to hurt your new garden friends!

***8734 A**: 3 lures (0#) for $13.50*

General Hydroponics AzaMax® Botanical Insecticide/Miticide/Nematicide with azadirachtins A & B derived from neem oil. AzaMax is more processed than **8660** Neem Oil, but this liquid mixes more easily and is registered as a pesticide. Broadly labeled for most insects and parasitic nematodes on edible and non-edible crops. Offers rapid knockdown of spider mites and cucumber beetles: same quick effects as **8765** PyGanic, but with a lower price tag and less toxic to bees. Mix at 1–2 oz/gal water and apply as a foliar spray or a drench. 4 oz size is not labeled for commercial use. EPA reg. 71908-1-81268. **OMRI**

***8735 A**: 4 oz (0#) for $30.00 **B**: quart (3#) for $125.00 ★*

Safer® Insecticide Soap Commercial Concentrate Biodegradable contact insecticide effectively controls mites, aphids, earwigs, lace bugs, leafhoppers, mealybugs, scale, spider mites, thrips, tent caterpillars and whiteflies. Fatty acids penetrate insects' soft outer membranes and disrupt normal functions. Use approx. 2 1/2 oz/gal water. Hard water can reduce soap's effectiveness; if your tap water is hard, use distilled water instead. EPA reg. 42697-60. **OMRI**

***8738 A**: pint (3#) for $18.00*

Monterey Sluggo® A blend of iron phosphate, a naturally occurring soil mineral, with snail and slug bait. Many species of snails and slugs are attracted to the bait, leaving their hiding places and plants to feed. When they ingest even small quantities of iron phosphate, they cease feeding and die a few days later. Damage reduction is almost immediate. Scatter the granules on the lawn or around plants or in the soil around trees and shrubs. Ground or lawn should be moist when applying. Apply at 1#/1000 sq ft, 1 tsp/sq yd. Reapply as the bait is taken. EPA reg. 67702-3-54705. **OMRI**

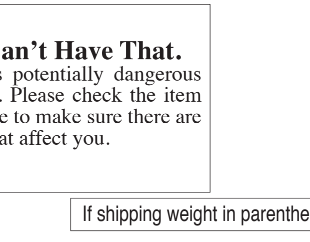
***8741 A**: 1# (0#) for $11.50 **B**: 5# for $30.00*

Monterey Sluggo® Plus Insect, Slug & Snail Pellets. The addition of a small amount of spinosad (0.07%) greatly increases the effectiveness and scope of Sluggo. Apply evenly 1/2–1# per 1000 sq ft to control slugs, snails, earwigs, cutworms, crickets, sowbugs, pillbugs and some species of ants. Best applied at evening to catch the late diners. EPA reg. 67702-24-54705. **OMRI**

***8744 A**: 1# (0#) for $16.00 **B**: 5# for $40.00*

Milky Spore Powder Japanese Beetle Control Ready to use. Works on Japanese Beetle grubs not the adults—so results are noticeable only over the long term. (Try **8765** Pyganic or **8768** Bug Buster-O for immediate control of adult beetles.) The active ingredient is spores of the bacterium *Bacillus popilliae*. Spread on the lawn, the spores collect on grassroots and are eaten by the Japanese beetle grubs. The grubs die in 7–21 days, releasing billions of new spores. For best results treatment should be community wide. Apply 1 teaspoon of powder every 4' in 4' rows throughout the infested area. EPA reg. 63191-1. **AYC**

***8747 A**: 10 oz (0#) for $47.50*



DiPel® DF Biological insecticidal dry flowable wettable powder. Commercial strength Bt (*Bacillus thuringiensis* subsp. *kurstaki*), approx 32,000 IU/mg. Labeled for a wide variety of caterpillar and moth pests on practically every agricultural crop there is. Apply at 1/4–2# per 100 gal per acre or 1/2–4 tsp per gal per 500 sq ft. EPA reg. 73049-39. **OMRI**

***8753 A**: 1# (0#) for $29.75*

Safer® Brand Caterpillar Killer for Trees, Shrubs & Vegetables Concentrate II. Liquid concentrate Bt (*Bacillus thuringiensis* subsp. *kurstaki*). Mix 1–4 tsp/gal of water depending on the intensity of the infestation. Labeled for a variety of caterpillar pests on most vegetables, ornamentals, and shade trees. Apply at first sign of activity and repeat as needed up to harvest. Best applied in the afternoon as Bt breaks down in direct sunlight. EPA reg. 70051-106-42697. **OMRI**

***8756 A**: pint (3#) for $18.50*

Monterey Garden Insect Spray Spinosad is a mixture of spinosyn A and D metabolites produced during fermentation by *Saccharopolyspora spinosa*, an actinomycete (fungus-like) bacterium discovered in Caribbean soil. The spinosyns demonstrate excellent insect control with very low toxicity for other organisms. Spinosad is selectively active on insects of the orders Lepidoptera (caterpillar pests) and Diptera (flies) as well as some Coleoptera (beetles) and Hymenoptera (sawflies, wasps, ants, and alas bees). Targeted insects include leafminers, corn borers, leafrollers, cabbage loopers, armyworms, Colorado potato beetles, thrips, apple maggots, codling moths, lesser apple worms, and oriental fruit moths. Effective for a wide range of crops. Because it can be toxic to bees, avoid spraying during flowering and pollination. Apply this 0.5% solution of spinosads at 1–2 oz/gal for all crops. Registered for home garden use only; **if you need a commercial product, please visit our website for Entrust.** EPA reg. 62719-314-54705. **OMRI**

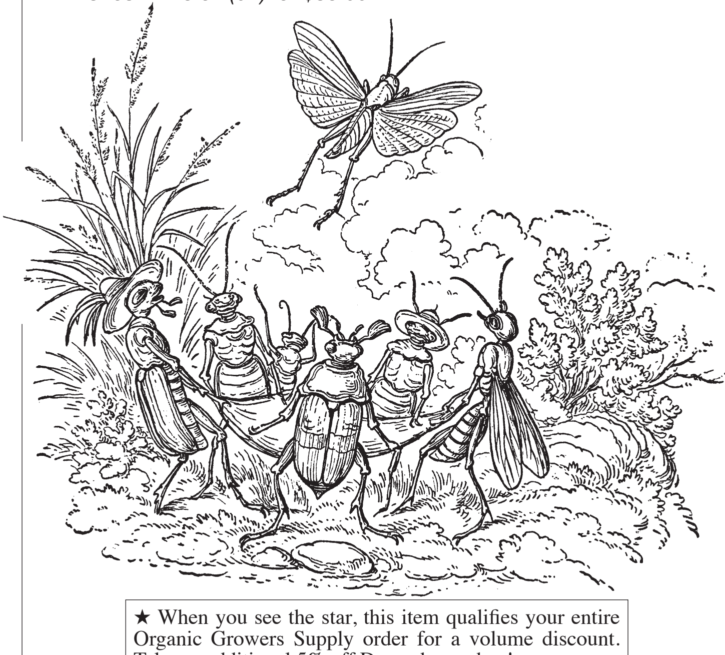
***8762 A**: pint (3#) for $21.25 **B**: gal (10#) for $105.00 ★*

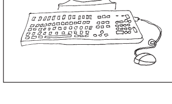
PyGanic® Crop Protection EC 5.0 II Pyrethrin is a botanical insecticide derived from a chrysanthemum, *Tanacetum cinerariaefolium*, grown in Kenya and Tasmania, with low toxicity for humans and other vertebrates. PyGanic is a 5% pyrethrin formulation with a rapid knockdown and high kill rate. Pyrethrins break down quickly so the toxic effects are short lived. May be used up to 12 hours before harvest. Effective for Colorado potato beetle, leafhopper, cucumber beetle, flea beetle, and others. This is a broad-spectrum insecticide so results are not limited to pests; it's a poison, so use wisely. Application rate is 4 1/2–18 oz/acre depending on pest and severity of infestation. EPA reg. 1021-1772. **OMRI**

***8765 A**: quart (3#) for $205.00 ★*

Monterey Bug Buster-O When the squash plants are eaten halfway to the ground or you can't see the rose bushes under the layer of Japanese beetles, it's time to reach for the heavy artillery. Effective and rapid knockdown of a broad array of insects both pestilential and beneficial, so exercise caution. We're not fans of the silly name, but we'll forgive Monterey for their ill-conceived branding because we needed a pyrethrin insecticide at a price that's affordable for the home gardener. Apply 1–1.4 oz/gal of water/1000 sq ft. Not labeled for commercial use; commercial growers should cough up for **8765** PyGanic, above. EPA Reg. No. 1021-1771-54705 **OMRI**

***8768 A**: 8 oz (0#) for $35.00*





Sorry. You Can't Have That.

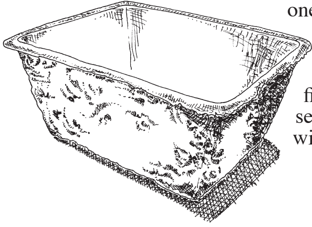
Each state treats potentially dangerous items differently. Please check the item description online to make sure there are no restrictions that affect you.

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!

Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

SEED STARTING SUPPLIES

Kord® Fiber Grow Garden Paks Made of recycled cardboard fiber, these handy planters breathe much like clay pots. Reusable with care—one customer says he got ten years out of his before he had to order new ones. Inside dimensions 6x4$^{3}/_{4}$ x2$^{3}/_{4}$", 6 nest in a 1020 Tray. Biodegradable, but not allowed for planting pot-and-all because a synthetic binder is used. MOFGA says fine for organic seedlings if you remove the seedlings from the tray before planting; check with your certifier to see if they agree.



***8781 A**: 6 (0#) for $4.00*
***B**: 100 (10#) for $38.00*
***C**: 300 (35#) for $105.50 ★*

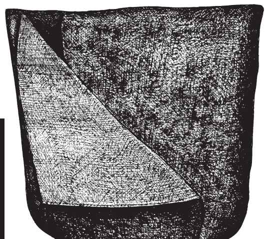
CowPots™ Tired of cleaning up all the brittle plastic after transplanting? Concerned about the effects of peat mining on the environment, and on the climate? Are your seedlings getting root-bound in their pots? CowPots present an innovative alternative for the eco-conscious farmer and gardener. Made in the U.S. entirely from cow manure. Sadly, complaints about above-ground durability led the manufacturer to alter their process in such a way that these pots are **Not Allowed** for certified-organic production.

CowPots 4" Square 4$^{3}/_{8}$" tall.
***8796 A**: 20 pots (0#) for $10.00*
***B**: case of 330 (60#) for $125.00 ★*

CowPots Six-Pack Approx. 9x6". 3" tall.
***8799 A**: six 6-packs (0#) for $7.00*
***B**: case of 120 (60#) for $100.00 ★*

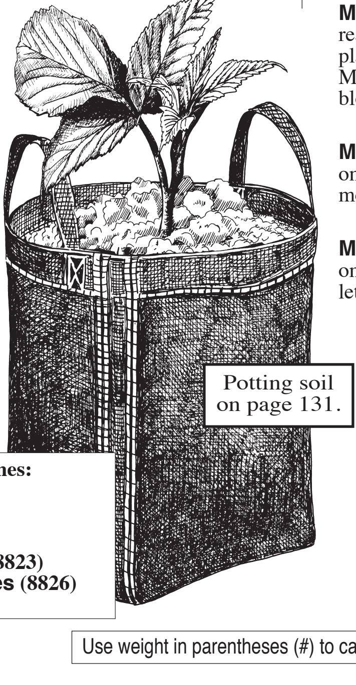
CowPots 3" Square 3" tall.
***8802 A**: 20 pots (0#) for $7.00*
***B**: case of 1176 (60#) for $250.00 ★*

CowPots 3" Round 3$^{1}/_{4}$" tall.
***8805 A**: 20 pots (0#) for $7.00*
***B**: case of 840 (60#) for $215.00 ★*



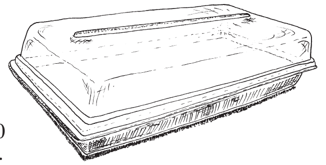
Transplanter Pot Like our regular fabric pots, but with a slit side to allow for easier transplanting without disturbing the root ball. Slit sides overlap so the pot holds the growing media without leaking. By popular request from our walk-in customers.
***8807 A**: 1 gal (0#) for $3.00*

Fabric Pots Non-woven fabric pots provide excellent support to growing plants while allowing air to flow through the pot walls, preventing root circling and helping to aerate the growing medium. Lets water drain thoroughly. Fantastic for indoor growing. Choose from 1-gal or 3-gal plain round pots for young plants; 5-gal or 20-gal round pots with build-in handles for easier maneuvering; and 45-gal or 100-gal plain round pots for those monster plants. Other sizes (up to 1000 gal!) available by the case by special order.
***8808 A**: 1 gal (0#) for $3.00*
***B**: 3 gal (0#) for $4.00*
***C**: 5 gal (0#) for $7.00*
***D**: 20 gal (0#) for $15.00*
***E**: 45 gal (2#) for $18.50*
***F**: 100 gal (2#) for $28.75*



See our website for more pots, trays & domes:
- **Jiffy Peat Pots** (8784-8793)
- **Plastic Six Packs** (8814)
- **Plastic Plug Flats** (8817-8820)
- **1020 Plant Trays with Drain Holes** (8823)
- **1020 Plant Trays without Drain Holes** (8826)
- **Domes for 1020 Trays** (8829)

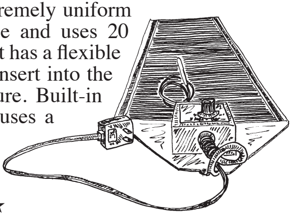
Heavy Duty Plant Tray These sturdy 11x22x2$^{3}/_{4}$" khaki plastic trays will last for years and are strong enough to hold 50 2" soil blocks without strain. Good for windowsills because they have no drain holes. Store out of sunlight when not in use; will fade and weaken if left in the sun over the summer.
***8832 A**: one tray (0#) for $11.25*



Heavy Duty Dome Sturdy clear plastic domes from the manufacturer of our heavy-duty plant trays. Not as rigid as the trays, but much stronger than 1020 Domes (found on our website). 3$^{1}/_{4}$" tall.
***8835 A**: one dome (0#) for $6.75*

Mesh Bottom Trays Like our standard 1020 trays (on our website), but with open mesh bottoms. Favored by many growers for soil block propagation as roots will air-prune, or can be used to support plug flats. Used in hydroponic production to suspend cuttings or young plants in nutrient solution.
***8836 A**: 5 trays (0#) for $12.50*
***B**: 50 trays (30#) for $100.00 ★*

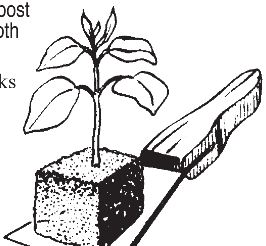
Precise Heat Mats A good heat mat makes the difference between success and complete failure when starting crops of tropical ancestry, including most Solanums (tomatoes, peppers, eggplants, husk cherries) and Cucurbits (squash, melons, cucumbers). Agritape heating element and built-in adjustable dial thermostat. Provides an extremely uniform precise temperature over its entire surface and uses 20 watts of electricity per foot. The control unit has a flexible 3' tube with a temperature-sensor bulb to insert into the soil; set the dial to desired soil temperature. Built-in GFCI shuts off the heater if dampness causes a short. Seed trays can be placed directly on the tape. Rolls up easily for storage. Both lengths 11" wide.



***8838 A**: 4 ft mat (5#) for $150.00 ★*
***B**: 8 ft mat (5#) for $180.00 ★*

LADBROOKE SOIL BLOCKERS

The genuine article, made in England by Ladbrooke Ltd. The soil block system eliminates annual costs for peat pots or six-packs, allows for easy transplanting, and eliminates root spiralling. **8371** Vermont Compost Fort Vee and **8365** GreenTree Ag Blend are both popular soils to use with soil blockers.



Mini 5 Blocker Makes five 1$^{1}/_{2}$" soil blocks in one stroke.
***8841 A**: blocker (2#) for $25.00*

Mini 4 Blocker Makes four 2" soil blocks in one stroke.
***8844 A**: blocker (2#) for $25.00*

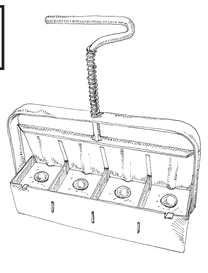
Micro 20 Blocker Makes 20 micro-blocks per stroke in a 3x4" area. Use when your space is limited or when you want a large number of transplants. Micro-blocks are easier to warm, speeding germination, and can be inserted into 2" soil blocks to continue seedling growth.
***8847 A**: blocker (0#) for $22.50*

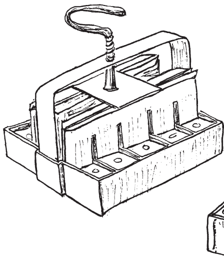
Micro Blocker Inserts Make 2" soil blocks ready to receive micro-blocks. Set of square plastic inserts can be screwed into Mini 4 or Multi 12 blockers. Pop out the plastic nipples on the blocker and screw in these inserts.
***8850 A**: package of 4 (0#) for $6.50*

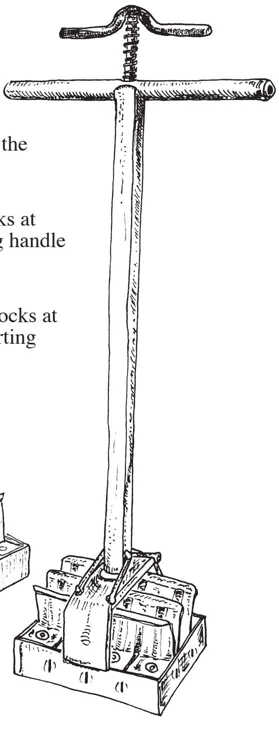
Multi 12 Floor Blocker Makes twelve 2" blocks at one time. Very helpful for large production. Long handle means no stooping.
***8853 A**: blocker (10#) for $167.50 ★*

Multi 20 Floor Blocker Makes twenty 1$^{1}/_{2}$" blocks at one time. Long handle. Great space-saver for starting lettuces and greens.
***8856 A**: blocker (10#) for $167.50 ★*

Potting soil on page 131.







Use weight in parentheses (#) to calculate shipping charge.

GARDEN & ORCHARD FABRICS

Trellis Netting 7" reach-through nylon mesh with a strand strength of 60# for tomatoes, climbing beans, peas, cucumbers and luffas. Weave a strand of fence wire through the top for extra support. May also be used horizontally to provide support for plants at risk of lodging. Will last for many years if you can avoid "the tangles"!

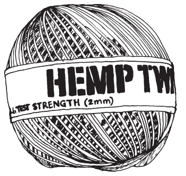
8859 ***A***: *5x30' (0#) for $14.75*
B: *5x60' (0#) for $25.75*

Bird-X® Orchard Netting Throw over trees or bushes and fasten to protect fruit or berries from birds, deer and possibly coons. Strong and durable black polypropylene 5/8" mesh with UV inhibitors.

8862 ***A***: *7x20' (0#) for $10.25*
B: *14x14' (0#) for $11.25*
C: *28x28' (2#) for $34.50*

Deer-X® Protective Fencing Use as temporary fencing to protect plantings and fruit crops from deer, birds and other pests. Same durable black polypropylene 5/8" mesh with UV inhibitors as Orchard Netting above. The lightweight mesh makes the fence almost invisible and startling to invading critters.

8865 ***A***: *7x100' (0#) for $25.00*
B: *14x75' (2#) for $35.00*



Hemp Twine Waxed hemp twine. Cut down vines along with the twine and compost the whole tangle. Promote the rediscovery of hemp as a great fiber plant at the same time! 48# test weight, perfect for tying up plants and marking rows.

8867 ***A***: *265' (0#) for $10.00*

Poly Garden Twine Strong cheap multipurpose white poly garden twine. 6300' of sheer usefulness in a cardboard box with handy belt slots so you can wear it instead of carrying it. Not biodegradable, so do remove it at the end of the season.

8868 ***A***: *6300' (3#) for $13.75*

ROW COVERS

Floating Row Covers Think of row covers first when seeking pest protection. Protects crops from flea beetles, cabbage worms, potato beetles, leafhoppers, even woodchucks. Also provides a gently warmed, protected environment to get sensitive crops like melons and peppers established in the field (must be removed at blossoming on most fruiting crops to ensure pollination). We are transitioning from Agribon+™ AG-19 to Covertan PRO 19, because it offers better durability and greater water permeability for the same price. Both fabrics are soft and pliable, UV-stabilized, offer about 4° of frost protection, and weigh 0.55 oz/sq yd. Agribon+ transmits 85% of sunlight while Covertan transmits up to 90%. Can last 2–3 seasons if you take care of it: remove it from the field as soon as possible, dry it out, and store it suspended so that rodents can't nest in it over the winter.

Agribon+™ AG-19

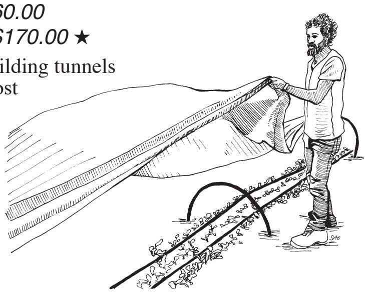
8874 ***A***: *83"x50' (2#) for $16.00*
B: *83"x250' (10#) for $55.00*
C: *83"x1000' (35#) for $190.00* ★
D: *83"x2000' (70#) for $350.00* ★
E: *10'x1000' (50#) for $350.00* ★

Covertan PRO 19 NEW!

8876 ***A***: *7'X50' (2#) for $16.00*
B: *7'X250' (10#) for $55.00*
C: *7'X1000' (35#) for $190.00* ★
D: *7'X2000' (70#) for $350.00* ★

Clear Slitted Plastic Row Cover Place over wire hoops to form small tunnels, creating a greenhouse environment to promote the growth of heat-loving plants. Self-venting on hot days. Offers a few degrees of frost protection. Especially recommended for sweet potatoes and long-season peppers. Can be reused with care. 1.1 mil.

8877 ***A***: *6x50' (2#) for $13.75*
B: *6x250' (10#) for $60.00*
C: *6x1000' (40#) for $170.00* ★



Galvanized Wire Hoops For building tunnels with slitted plastic or Covertan. Most effective if spaced every 5' or less. "Hoops" are shipped as straight 74" flexible rods of 10-gauge wire. Stick one end in the ground and then stick the other end in at the desired tunnel width to form a hoop. (The shipping weights for the hoops reflect the cost of shipping these awkwardly long bundles.)

8880 ***A***: *bundle of 20 (36#) for $35.00*
B: *bundle of 100 (50#) for $115.00* ★

Earth Staples The garden is full of rocks except when you need some to anchor the row cover. 6" steel wire staples neatly hold down landscape fabrics of all kinds.

8883 ***A***: *bundle of 25 (0#) for $6.00*
B: *bundle of 100 (4#) for $14.00*
C: *case of 1000 (35#) for $96.00*

Fedco Supports MOFGA

The Maine Organic Farmers and Gardeners Association is a broad-based community that educates about and advocates for organic agriculture, illuminating its interdependence with a healthy environment, local food production, and thriving communities. Fedco is a longstanding part of that community (we even inherited the Organic Growers Supply operation from them!) and a regular donor. We encourage you to join us in supporting them by making a donation with your OGS order, either online or on the order form on page 165.

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!

Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
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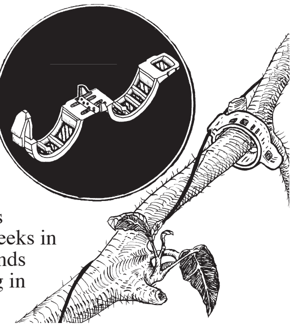
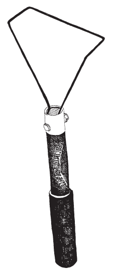
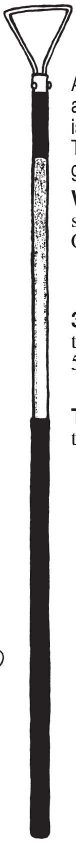
GARDEN TOOLS & EQUIPMENT



Biodegradable Tomato Clips Easy to use and even easier to dispose of! Use these 7/8" (internal diameter) clips made of non-GMO cornstarch to attach tomatoes (or cucumbers, or melons, or other thin-vined plants) to your trellis system. If you use a biodegradable material (like **8867** Hemp Twine) for your trellises, you can just cut the whole thing down at the end of the season and let it degrade in place, saving the labor of picking through the vines and strings for bits of plastic. The clips will fully compost in 13 weeks in suitable conditions. This lack of stability demands caution: do not leave a bag of these clips sitting in the sun or they might melt together! Certified organic operations must dispose of these clips as they would plastic clips, but at least they're made of renewable materials and won't pile up in the landfill.

***8886 A**: 100 count (0#) for $7.50*



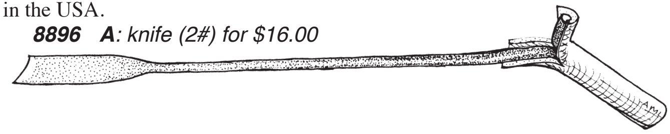


Wire Weeders Like a stirrup hoe, these weeders make quick work of small weeds, slicing the stem from the root just below the soil surface. Unlike a stirrup hoe, they don't have moving parts to wear down, and they are light as a feather (though plenty strong). Not intended for hacking through tough roots or into compacted soil, so please don't use them that way. Aktan loved the one he brought home: he found it ergonomic and effective. Both versions have a 5" wide head and an aluminum handle with a comfortable foam grip. The hand weeder has a 10" handle (overall length 14") and the long weeder has a 56" handle (overall length 60"). Made in Vermont by Two Bad Cats, a father-son team who engineer and manufacture well-made ingenious tools for the serious gardener and small farmer. See more tools by Two Bad Cats on p. 148.

***8893 A**: hand weeder (2#) for $32.50*
***B**: long-handled weeder (10#) for $55.00*

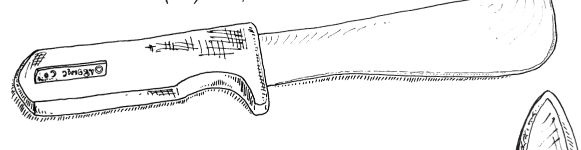
Asparagus Knife 1 1/2x7" blade, 15" handle with a pistol grip. A wicked-looking tool, but perfect for harvesting asparagus. Stick the knife into the soil against the stalk to harvest it a couple of inches below the ground. The blade is slightly concave so that it will slice the stalk cleanly. Manufactured in the USA.

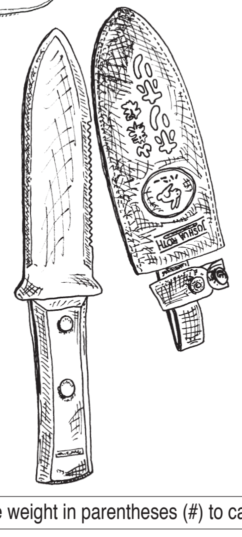
***8896 A**: knife (2#) for $16.00*



Broccoli Knife Specialized trapezoidal shape with two cutting edges slices plants off at ground level for clean quick harvesting or nips sideshoots for continued growth. Stainless steel blade has high carbon content for easy sharpening. Blade 7" long, 2" wide at widest point; handle 4 3/4" long in bright yellow plastic for good visibility in the weeds. Made in Taiwan.

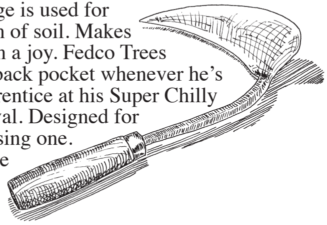
***8899 A**: knife (0#) for $7.50*





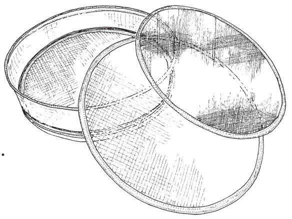
Weeding Knife or ***Hori-Hori*** Someone using heavy equipment could bend this digging tool, but no amount of prying in the garden will. Thick concave steel blade with bevelled edges tapering to a point, one semi-sharp smooth edge and one serrated edge. The 6 1/2" blade extends 2 1/2" into the wooden handle to which it is securely riveted. Susan and David's favorite hand tool, still in good condition after decades of hard use and benign neglect. Originally designed to extricate plants for bonsai from Japan's mountains. Good tool for planting bulbs and strawberry crowns, for general cultivating and for sawing small roots or heavy stems, though not as sharp as a knife or a saw. Comes with a black vinyl sheath with a belt loop. 11 1/4" long overall. Manufactured in Japan.

***8908 A**: knife (2#) for $35.00*



EZ-Digger™ Unique plow-shaped design from Korea, where it is called *Ho-Mi* (little ground spear), features a 7" long, 3" wide convex blade tapering to a pointed end, which is great for removing deep roots and sod and for cultivating soil. The convex edge is used for light surface weeding and redistribution of soil. Makes cultivating around trees or in the garden a joy. Fedco Trees founder John Bunker keeps one in his back pocket whenever he's in the orchard or garden and every apprentice at his Super Chilly Farm receives an EZ-Digger upon arrival. Designed for right-handers, but many lefties enjoy using one. If the handle comes loose, reinsert blade tang and rap handle forcibly on a hard surface to reset it. Handle length 4 7/8". Manufactured in Korea.

***8911 A**: digger (0#) for $15.00*



Soil & Seed Sieve Set A 12" diameter stainless steel frame with 3 interchangeable screens of 4, 5 and 10 mesh/inch. Use to prepare potting mix or for seed cleaning: the screens singly or together can hold up seed while the chaff drops out or vice versa. Manufactured in Japan.

***8914 A**: set (5#) for $30.00*

ASHFIELD TOOLS

Ashfield Tools, founded by Ned James, is a small company in Ashfield, MA, offering a line of high-quality garden tools, handcrafted from locally supplied materials. Each is hand-forged with high-carbon tool steel. The birch handles are made in Maine. These tools are sturdy and long-lasting, designed to work well and to enhance the gardening experience.

Weeder The 3 3/4 x 3/4" blade is set at right angles to the shaft with a bevelled sharpened edge to separate weeds from their roots just below the surface. Gene's new favorite hand tool! Overall length 12".

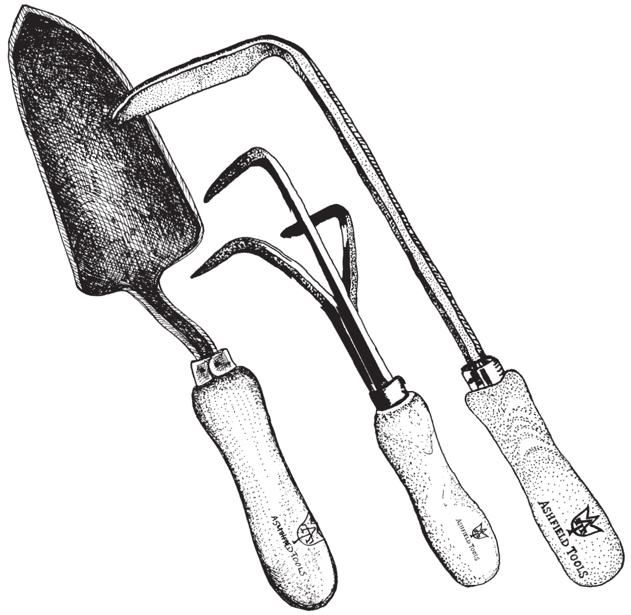
***8917 A**: right-handed weeder (2#) for $45.00*
***B**: left-handed weeder (2#) for $45.00*

3-Pronged Cultivator Classic design to loosen the soil prior to planting or to cultivate around plants to improve moisture penetration and disrupt weeds. 5 1/2" fork on a 5" handle.

***8926 A**: cultivator (2#) for $55.00*

Trowel Blade is 5 3/4x2 3/4" tapered to a point, perfect for planting bulbs and transplants or removing taprooted weeds. Overall length 12".

***8929 A**: trowel (2#) for $55.00*



Looking for scythes?

For a complete line of kits, snaths, blades and good advice we recommend you contact:

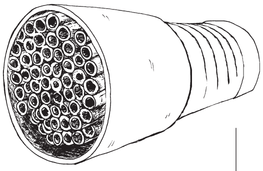
Scythe Supply
496 Shore Rd Perry ME 04667
207-853-4750
scythesupply.com

ORCHARD TOOLS & SUPPLIES

Supplies for monitoring orchard pests are on p. 135.

BeeHut Bee House An estimated 15% of the combined value of U.S fruit, nut, vegetable and field crop production can be attributed to pollination services provided by native bees. This percentage is likely to grow as honeybees are challenged by mites, disease, pesticide exposure and colony collapse. Customer George Schelling wrote us last winter from Hancock County, ME, informing us that the bee nesting boxes we'd been offering were unhealthy for bees because they couldn't be cleaned out. We've replaced them with this next-gen bee house from a family operation in Washington state. Fill these simple, easy-to-clean plastic houses with natural reeds (**8963-A** for reeds preferred by mason bees; **8963-B** for reeds preferred by leafcutter bees). Replace reeds each season. Solitary bees lay their eggs in any available tunnels, and populations are limited by the number of available sites. To help increase your populations, screw the base cap to stakes along the edges of fields and orchards by late April, as most of these bees begin looking for nesting sites in May. **NEW!**

8961 A: *bee house (2#) for $20.00*



BeeHut Reeds Larger size are for spring mason bees; smaller for summer leafcutter bees. Either bundle will fill one BeeHut. Use fresh reeds each year! **NEW!**

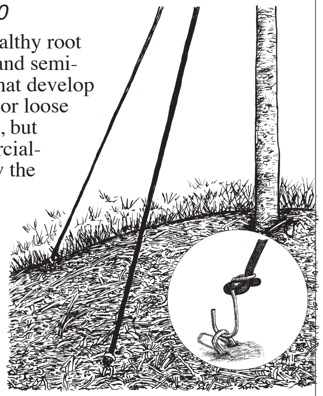
8963 A: *20 larger reeds (0#) for $10.00*
B: *30 smaller reeds (0#) for $10.00*

Tree Guards Spiral plastic guards protect tree trunks from mice and voles in the winter. Remove them from apple trees during the growing season lest they provide a habitat for borers. 24" high. Can be cut with scissors to customize height.

8965 A: *bundle of 4 (2#) for $4.00*

Limb Spreaders These galvanized metal limb spreaders are more durable than the plastic versions we used to carry. Use them to establish optimal crotch angles on young tree branches. The patented tip style has a sturdy point in the middle and gently curved corners to hold the branch and prevent slipping. Bundle of 12, in assorted sizes between 6" and 16".

8968 A: *bundle of 12 (0#) for $13.00*



Tree Staking Kit Stake your claim on a healthy root system! Staking is recommended for dwarf and semi-dwarf fruit trees, trees in windy sites, trees that develop a leaning habit, and trees planted in shallow or loose soil. Homemade stake systems are an option, but they're not necessarily optimal. The commercial-strength rubber support lines in this kit allow the tree to sway slightly, just as nature intended, which promotes the growth of a strong and evenly distributed root system. Rated for trees up to 2" in trunk diameter. Lines are easy to unhook for pruning, weeding, mulching, etc. Kit includes supplies for staking one tree: three 4 1/2' rubber lines (1/4" diameter), three metal hooks, three 11" metal stakes, and installation instructions. **NEW!**

8969 A: *staking kit (2#) for $25.00*

Grafting Kits The basics you'll need to graft fruit trees (or any woody plants that can be propagated by grafting). Includes one right-handed grafting knife with single-bevel blade for smooth, flat cuts (plus it's micro-beveled so it will hold its edge through sustained use); one bottle of Treekote Grafting Sealer to prevent the wood from desiccating; and one roll of grafting tape to secure the graft union: 1/2" Parafilm for bench grafting (Kit **A**) or 1/2" PVC tape for topworking (Kit **B**). We include a sheet with instructions and illustrations for how to bench graft or how to topwork, based on whether you buy A or B. Try **9007**-**9013** Felco pruners for trimming scionwood and rootstock and **9040** Silky Pocketboy saw for topworking. (It has very fine teeth for clean cuts.) Check out our Trees catalog for scionwood and rootstock.

8971 A: *bench-grafting kit (3#) for $24.75*
B: *topworking kit (3#) for $24.75*

Parafilm® Grafting & Budding Tape Very stretchy 1/2" or 1" wide tape holds graft union firmly together. Parafilm, a low-molecular-weight polyethylene product, is relatively benign in the environment, unlike PVC. It also does not need to be cut off the tree because it decomposes and falls off on its own in one or two months. 90' roll.

8974 A: *1/2" tape, one roll (0#) for $3.00*
B: *1/2" tape, case of 12 rolls (2#) for $21.00*
C: *1" tape, one roll (0#) for $6.00*
D: *1" tape, case of 6 rolls (2#) for $21.00*

PVC Grafting Tape Some grafters report that Parafilm tape is not strong enough for larger grafts. PVC tape is much stronger than Parafilm and will not break down. This makes it suitable for topworking. Leave it on the tree until the graft is well established, then remove. 1/2"x300'.

8977 A: *one roll (0#) for $4.25*

Rubber Grafting Strips Rubber strips are more suitable for large grafts and supply more even pressure across the entire grafted area than tape does. Doesn't break down as quickly as Parafilm. Some grafters like to cover a rubber strip with Parafilm.

8980 A: *4x3/16" 700 ct. (0#) for $9.50*
B: *5x1/4" 300 ct. (0#) for $9.50*
C: *8x3/8" 110 ct. (0#) for $9.50*

Grafting Wax Use to seal and protect new grafts from the elements. Does not need to be heated, just work in your hands until soft and pliable and then fill any spaces and cracks.

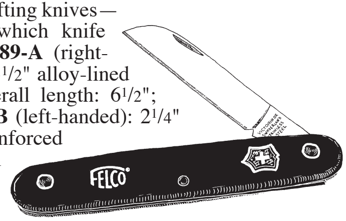
8983 A: *7 oz (0#) for $11.00*

Treekote™ Grafting Sealer Water-soluble graft dressing emulsion. Dries quickly. Used extensively and successfully with any kind of grafting. (We do not recommend painting any compounds on pruning cuts or tree wounds.) Screw-on lid and attached brush applicator.

8986 A: *pint (0#) for $12.50*

Choose the right (or left) grafting knife! Deciding between a "right-handed" or "left-handed" grafting knife is more subtle than simply ordering RH if you're a righty and LH if you're a lefty. You must consider which feels like a more natural slicing motion to you: pulling toward yourself, or pushing away from yourself. If you're not sure, try practicing with a utility knife. Fedco's resident grafting instructor notes that in most cases, pulling toward gives the grafter more knife control than pushing away. On the other hand, your mother said you should never cut toward yourself. Whether slicing toward or away from yourself, the beveled side should face up and the flat side should face down.

Here's a simple key to help you decide which knife to get:
Prefer to hold knife in RH and cut toward yourself: Style A (RH)
Prefer to hold knife in RH and cut away from yourself: Style B (LH)
Prefer to hold knife in LH and cut toward yourself: Style B (LH)
Prefer to hold knife in LH and cut away from yourself: Style A (RH)



Grafting Knife To shape a stick of scionwood for grafting, you need a knife that is beveled on only one face so the cut is as flat as possible. We offer "right-handed" and "left-handed" grafting knives—see explanation above to decide which knife will suit your style of grafting. **8989-A** (right-handed): 2 1/4" stainless steel blade; 3 1/2" alloy-lined nylon handle with satin finish; overall length: 6 1/2"; manufactured in Switzerland. **8989-B** (left-handed): 2 1/4" carbon steel blade; 4 1/8" fiberglass-reinforced nylon handle with satin finish; overall length: 6.7"; manufactured in Italy. Why is B more expensive than A? The righties are manufactured on a much greater scale than lefties. Also, the lefty knife features a precision bark-lifter tab.

8989 A: *right-handed knife (0#) for $16.00*
B: *left-handed knife (0#) for $35.00*

All-purpose Budding Knife Pointed curved-end 2" stainless steel blade for cutting buds and slicing insertion slits in the bark of the host rootstock. Round-tipped solid brass 1" bark-opener blade for prying open slit to insert the bud without slicing the bark. 3 1/2" alloy-lined nylon handle. Right-handed. Manufactured in Switzerland.

8992 A: *budding knife (0#) for $27.00*

World's Best Fruit Picker We've been through a few different models of fruit pickers: it turns out people are picky about their pickers! We introduced this one a couple of years ago and it seems to make everyone happy. Foam-lined cradle and narrow curved teeth; the handle is fiberglass and telescopes from 6 1/2' to 13' to pick those pears way up high. Manufactured in Taiwan.

8998 A: *picker (35#) for $35.00*

Deluxe Picking Bucket with Harness Comfortable wide cloth straps distribute the weight of your harvest across your back and shoulders while you pick. Drawstrings unhook and gently release fruit from the bottom of the bucket, so you don't have to lift and dump. Foam-lined bucket has a Cordura® nylon skirt & bottom. 3/4 bushel capacity (about 32 lbs of fruit). Manufactured in the USA.

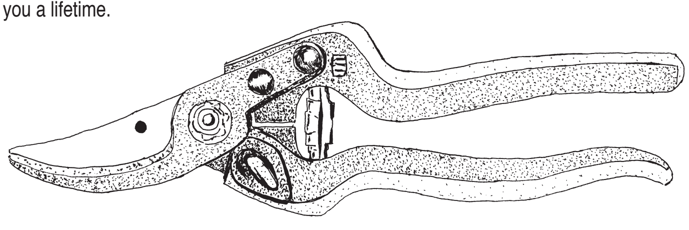
9001 A: *bucket (7#) for $105.00* ★

Microbrite Plus Pocket Microscope This ultra-portable user-friendly pocket scope magnifies 60–120x, with a powerful LED light to deliver a bright clear image. Many loupes and pocket scopes require expensive specialty batteries: this one runs on a single AA battery (not included). Essential tool for observing trichome color to determine harvest timing; also useful for identifying miniature pests, detecting the early stages of fungal or bacterial infections, reading the tiny print of this catalog, or just messing around with the kids. 59mm x 30mm x 92mm.

9002 A: *microscope (0#) for $16.00*

FELCO® PRUNERS

Imported from Jura, Switzerland, Felco tools set the standard for professional quality, precision and durability. Made with high-quality steel and forged metal alloys, they feature extensively researched ergonomic designs so they work well and will last a you a lifetime.



Felco F160 Pruners A very lightweight pruner with composite fiber handles, hardened steel blade and anvil. Angled head and handles are ergonomically designed to reduce the strain of hours of pruning. Two sizes: 160S for smaller hands and 160L for larger hands. May be used in either hand.

***9004 A**: 160S smaller (0#) for $40.00*
***B**: 160L larger (0#) for $40.00*

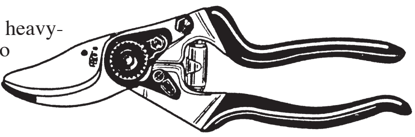
Felco #6 Pruners Designed for a smaller hand, otherwise just like the heavy-duty Felco #8 pruners. Customer Anne Greensfelder, an occupational therapist specializing in hands, explained that most women who use the #8 can't open it all the way so don't get the full advantage of its leverage. Ideal for pruning grape vines, shrubs and young trees. The smaller size allows cuts closer to the stem. Right-handed.

***9007 A**: #6 right-handed (0#) for $60.00*

Felco #7 or #10 Pruners The handle that sits on one's fingers rotates to allow fingers to move naturally, reducing the fatigue and blistering brought on by a hard day's pruning. Requires less effort than conventional pruners.

***9010 A**: #7 right-handed (0#) for $85.00*
***B**: #10 left-handed (0#) for $85.00*

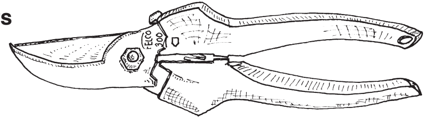
Felco #8 or #9 Pruners



The classic Felco hand pruners: heavy-duty, lightweight, comfortable to hold. Excellent cutting action. Blade features a sap groove and soft-wire cutter. Easy to adjust and sharpen.

***9013 A**: #8 right-handed (0#) for $65.00*
***B**: #9 left-handed (0#) for $65.00*

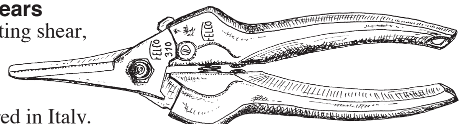
Felco #300 Flower Shears



Useful for light pruning, deadheading and cutting stems for arranging. Manufactured in Italy.

***9016 A**: flower shears (0#) for $19.00*

Felco #310 Harvest Shears

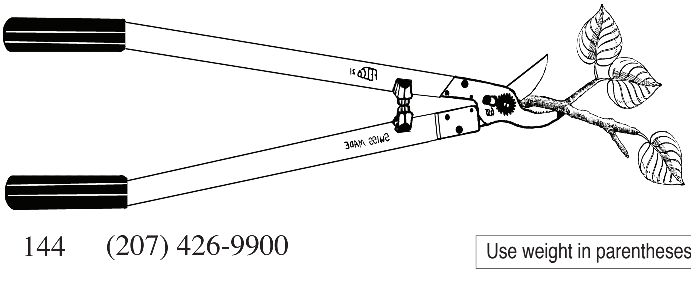


Fruit and vegetable harvesting shear, lightweight with narrow needle-nose head for harvesting grapes and other produce. Manufactured in Italy.

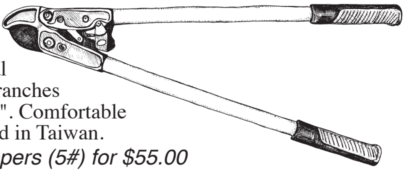
***9019 A**: harvest shears (0#) for $19.00*

Felco #200-A Loppers An excellent lopper with 17" tubular aluminum handles capable of cutting branches up to 1$^{1}/_{2}$" diameter. Comfortable to handle, easy to use. The danger is not knowing when to stop. Manufactured in Switzerland.

***9022 A**: loppers (5#) for $100.00 ★*

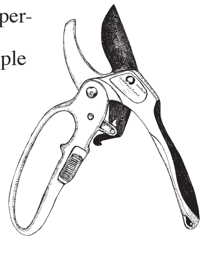


Ratcheting Loppers Lop with ease! These loppers use a simple ratcheting mechanism to increase the pressure from your grip five-fold. One red handle and one black handle: hold the black handle still and move the red handle back and forth several times. The branch will cut cleanly with less strain and fatigue than with traditional loppers. Accommodates branches up to 1$^{1}/_{2}$". Overall length 25". Comfortable rubberized grip. Manufactured in Taiwan.



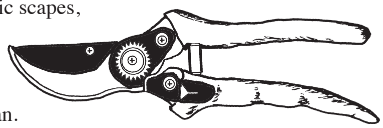
***9023 A**: ratcheting loppers (5#) for $55.00*

Ratcheting Pruners If you have arthritis or low upper-body strength, you may find pruning jobs a challenge. Simple physics to the rescue! These pruners use a simple ratcheting mechanism to increase the pressure from your grip five-fold. Simply depress and release the handle several times and the branch will cut cleanly. Accommodates branches up to 1". Overall length 8". Comfortable rubberized grip and a handguard to protect your knuckles from thorny bushes. Manufactured in Taiwan.

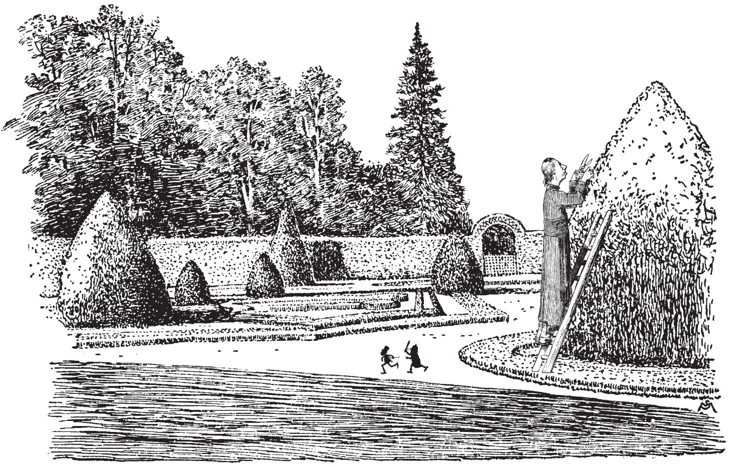


***9024 A**: ratcheting pruners (0#) for $26.75*

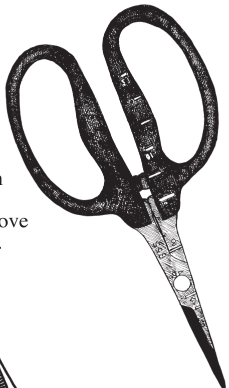
OTC Bypass Pruners Cut garlic scapes, harvest tomatoes, greens and herbs. Gets the job done, but inexpensive enough for apprentice crews or careless gardeners. Manufactured in Taiwan.



***9025 A**: right-handed (0#) for $10.00*

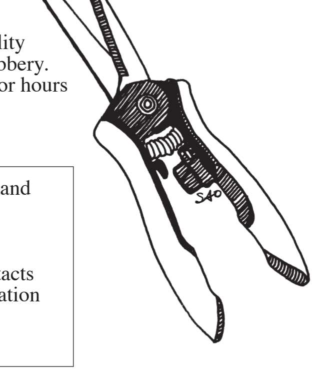


World's Best Trimmers Chikamasa B500-SLF scissors are designed to accomplish lengthy delicate trimming jobs ergonomically and efficiently. Razor-sharp 1.38" stainless steel blades are curved to allow precise cuts without straining your wrist, and fluorine-coated to resist sap buildup. You'll have to clean them eventually, but you can trim for hours without needing to clean them. Rub them down with isopropyl alcohol or soak them in oil between trimming sessions to remove the gunk that does accumulate. Overall length 6.1". Manufactured in Japan.



***9027 A**: trimmers (0#) for $26.50*

Hydroponic Shears For trimming jobs requiring delicacy and precision. Stainless steel blades extend through the rubber-coated plastic handles, making these shears as durable as they are lightweight. Handles are high-visibility yellow so they don't get lost in the shrubbery. Comfortable enough that you can trim for hours on end. Manufactured in Taiwan.



***9028 A**: shears (0#) for $16.50*

On the web: go to **fedcoseeds.com** and click on Organic Growers Supply for:
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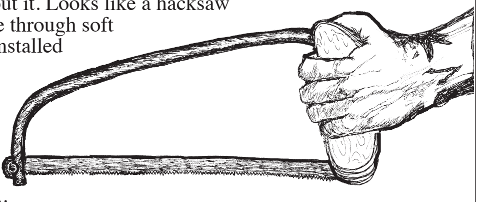
- pricing updates

PRUNING SAWS

Replacement blades for pruning saws are available on our website.

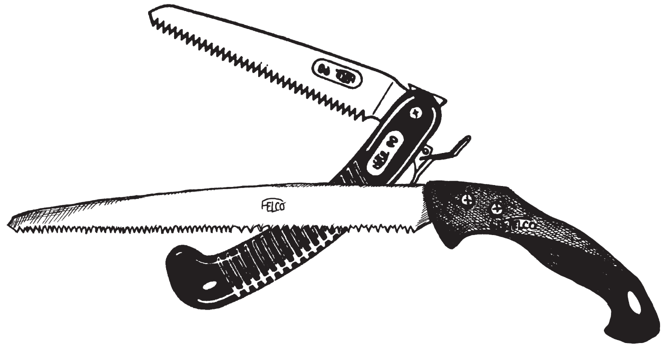


Wheeler Pruning Saw John Bunker says, "Although not well known outside the orchard trade, this is the best all-around pruning saw there is. I never prune a tree without it. Looks like a hacksaw and cuts like a sharp knife through soft butter. The blade can be installed to cut on the pull or push stroke." Wooden handle, arched metal frame. 10 teeth/inch. Blade length, 14"; total saw length, 16"; weight, 11.5 oz. Manufactured in the USA.

***9031 A**: saw (0#) for $45.00*

Felco #600 Folding Pruning Saw Japanese-style pull-action pruning saw with a locking blade that folds into the handle. The patented design of the blade, thicker at the bottom and thinner at the top, prevents clogging and binding, since only the teeth come in contact with the wood. Works well in tight places and cuts branches up to 4" in diameter. Overall saw length, 14"; blade length, 6"; weight, 4.9 oz. Manufactured in Korea.

***9037 A**: saw (0#) for $32.50*



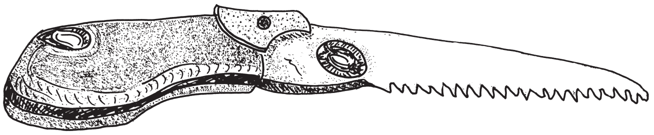
Felco #611 Straight Pruning Saw Larger pruning saw with durable ergonomic non-slip plastic handle. 13" blade features the same patented Japanese design as the Felco #600 model, cuts very smoothly on the pull stroke. Hard chrome plating prevents rust. Easily cuts 5–6" limb. Comes with a plastic blade sheath. Total saw length is $19\frac{3}{4}$"; weight, 13.1 oz. Manufactured in Korea.

***9038 A**: saw (2#) for $55.00*

SILKY SAWS

Our line of Silky saws comes recommended by Daniel MacPhee of Blackbird Rise Farm in Palermo, ME. According to Daniel, the Japanese Silky saws cut "a million times better" than Felco saws. The blades have more teeth per inch and are thinner and more flexible. The latter attribute improves performance but does make the blade more susceptible to bending, so be gentle with it. Silky saws cut on the pull stroke. Manufactured in Japan.

Replacement blades for pruning saws are available on our website.

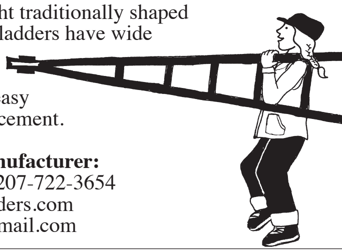


Silky Pocketboy Folding Saw This compact saw with a 5" blade is nicknamed "Little Giant" due to its colossal cutting capacity. Delivers incredibly smooth clean cutting with remarkable speed, making this the go-to saw for pruning and topworking limbs 4" diameter or less. The clean cuts allow the tree to heal well. This little fella has found its following among not only orchardists and landscapers, but also woodworkers, arborists, campers, hunters and survivalists. Given its handy size, why would you go anywhere without it? Blade, with 8.5 non-set teeth per inch, folds into a black nonslip rubberized handle.

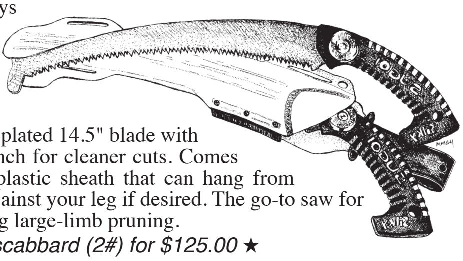
***9040 A**: saw (0#) for $50.00*

Orchard Ladders

Sturdy lightweight traditionally shaped wooden orchard ladders have wide bottoms for stability and narrow tops for easy handling and placement.



Contact the manufacturer:
Peter Baldwin, 207-722-3654
baldwinappleladders.com
baldwinpeter@gmail.com



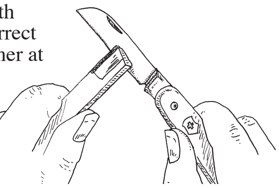
Silky Sugoi Straight Pruning Saw & Scabbard *Sugoi* is Japanese for amazing and awesome! Michael Phillips calls this pull saw "the mighty Silky limbing saw" and says that with this integral part of his pruning kit, "substantial scaffold branches can be cut with little effort." Gently curved chrome-plated 14.5" blade with 5.5 non-set teeth per inch for cleaner cuts. Comes with a bright yellow plastic sheath that can hang from your belt and secure against your leg if desired. The go-to saw for some seriously amazing large-limb pruning.

***9043 A**: saw & scabbard (2#) for $125.00 ★*

Silky Hayauchi Pole Saw *Hayauchi* is Japanese for 'fast beating'—as in drumming or typing. It also makes for fast fluid sawing. 15.4" high-carbon steel blade with 5.5 teeth per inch extends from an aluminum oval pole that telescopes from 8' to an astounding 21'! With this versatile saw, you'll be able to stand safely on the ground while dexterously pruning limbs that would otherwise be impossible to reach without tree-climbing gear or a tall ladder. Fedco OGS mastermind David Shipman has owned one for many years and he calls it his favorite landscaping tool. Includes a rigid plastic blade cover. 6.9 lb working weight.

***9049 A**: pole saw (40#) for $375.00 ★*

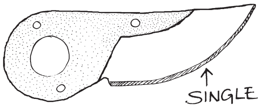
SHARPENERS



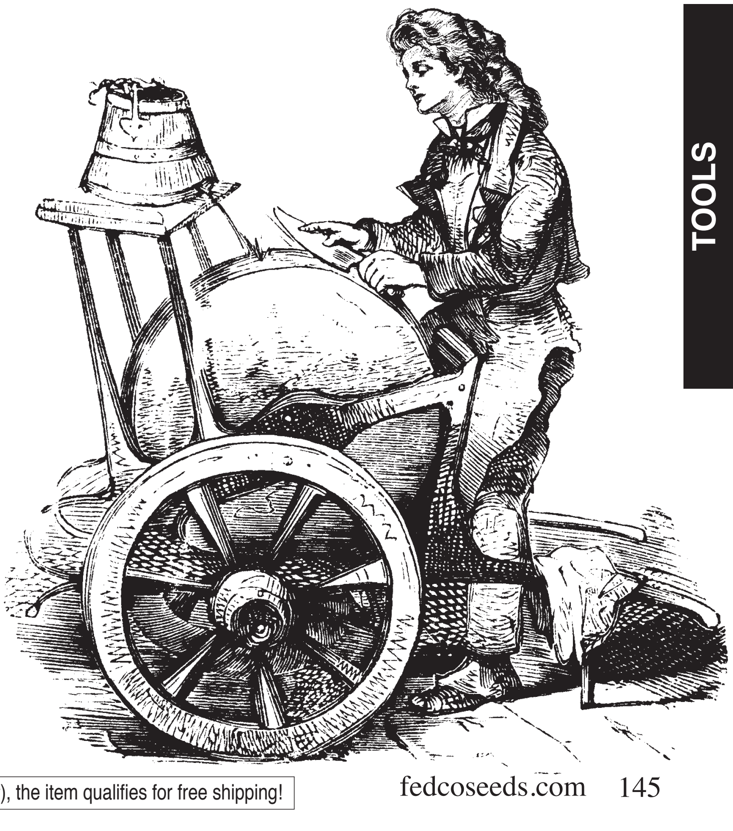
Felco Sharpener Composite steel blade with two precision edges hones and imparts the correct cutting angle in the same stroke. Hold sharpener at a 30–50° angle to your knife or pruner blade and pull across with light pressure two or three times. That's all it takes. Felco pruner blades are single-bevel: sharpen only one side of the blade. Manufactured in Switzerland.

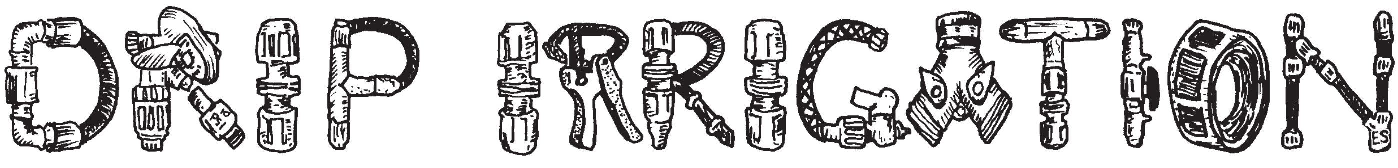
***9061 A**: sharpener (0#) for $25.00*

Sharpeners for Dummies Those with a knack for sharpening tools consider it an art and a science, and you couldn't pry the good old-fashioned sharpening stone from their cold dead fingers. For the rest of us, a sharpening stone is a source of confusion and frustration, our tools becoming duller with each "sharpening" session. Enter these angled sharpeners, which you simply run over the edge of your tools for a quick and easy like-new edge. Choose from **9064-A** for single-bevel tools like pruners and hoes, or **9064-B** for double-bevel tools like most kitchen knives. Tungsten carbide blade and a plastic grip with a full-length finger guard. Overall length $5\frac{1}{4}$". Both styles manufactured in the USA.



***9064 A**: one-sided blade sharpener (0#) for $16.00*
***B**: two-sided blade sharpener (0#) for $16.00*




DRIP IRRIGATION
ES

Drip irrigation applies moisture where it is needed, at the plants' roots, so it conserves water and does not cause mold problems. The drip method helps crops get over transplant shock and get established, and ensures adequate water supply until the rain comes. Also useful in greenhouses.

We recommend sketching your garden and proposed irrigation system before you order to ensure that you receive all the pieces you need. For help in designing your own system see fedcoseeds.com/ogs/drip.htm.

ARE YOU HIP TO THE DRIP?

STARTER & EXPANSION KITS

We offer two kinds of kits: garden row-crop kits equipped with low-flow drip tape for a uniform distribution of moisture along the tapes, and an orchard-crop kit with emitter tubing (see next page).

Garden Irrigation Starter Kit For 200' of irrigation. Includes the Spigot-Connection Set (below) and

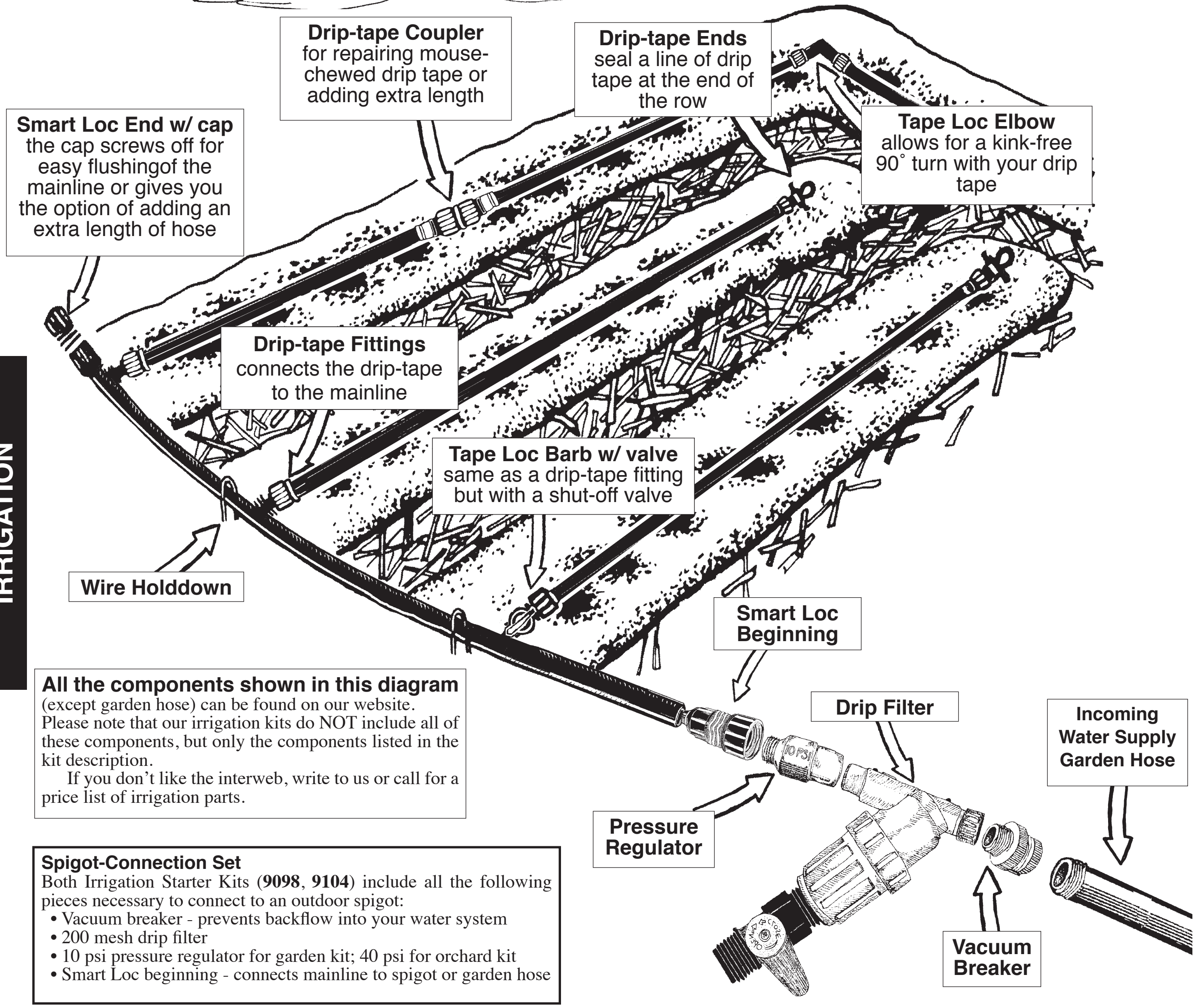
- 200' of low-flow drip tape
- 100' of 1/2" polyethylene mainline tubing
- 2 mainline ends with screw caps - removable for flushing line
- Coupler (1/2") - joins two pieces of mainline tubing
- 10 drip-tape fittings which plug into the mainline
- 10 drip-tape ends to seal the end of a line of drip tape
- 2 tape couplers to repair breaks or tears in the drip-tape line
- 20 wire holddowns
- Manual punch - makes 1/4" holes to install drip tape
- 10 two-way plugs - fill holes in mainline if you relocate drip-tape fittings

***9098 A**: kit (10#) for $110.00* ★

Garden Irrigation Expansion Kit Gives you another 200' of irrigation. Contains

- 200' of low-flow drip tape
- 10 drip-tape fittings which plug into the mainline
- 10 drip-tape ends to seal the end of a line of drip tape
- 2 couplers to repair breaks or tears in the drip-tape line

***9101 A**: kit (5#) for $36.00*


Drip-tape Coupler for repairing mouse-chewed drip tape or adding extra length
Drip-tape Ends seal a line of drip tape at the end of the row
Smart Loc End w/ cap the cap screws off for easy flushingof the mainline or gives you the option of adding an extra length of hose
Tape Loc Elbow allows for a kink-free 90˚ turn with your drip tape
Drip-tape Fittings connects the drip-tape to the mainline
Tape Loc Barb w/ valve same as a drip-tape fitting but with a shut-off valve
Wire Holddown
Smart Loc Beginning
Drip Filter
Incoming Water Supply Garden Hose
Pressure Regulator
Vacuum Breaker
10 PSI

All the components shown in this diagram (except garden hose) can be found on our website. Please note that our irrigation kits do NOT include all of these components, but only the components listed in the kit description.

If you don't like the interweb, write to us or call for a price list of irrigation parts.

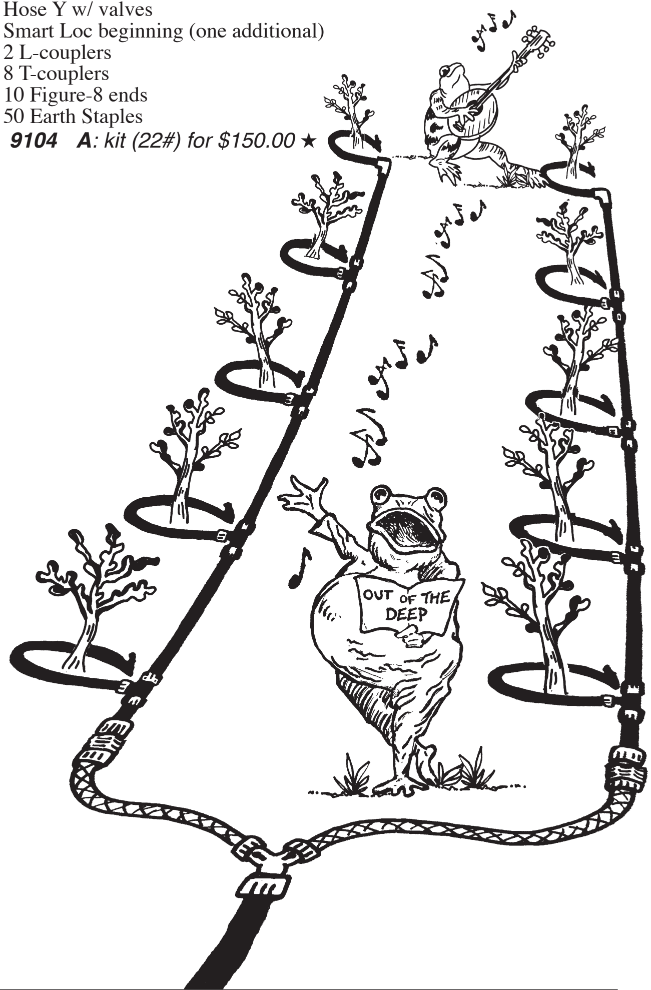
Spigot-Connection Set
Both Irrigation Starter Kits (**9098**, **9104**) include all the following pieces necessary to connect to an outdoor spigot:

- Vacuum breaker - prevents backflow into your water system
- 200 mesh drip filter
- 10 psi pressure regulator for garden kit; 40 psi for orchard kit
- Smart Loc beginning - connects mainline to spigot or garden hose

Orchard Irrigation Kit So you've planted (or are about to plant) a carefully spaced and fertilized new orchard. Make sure the plants get the water they need! Most fruit trees, shrubs and canes require the equivalent of 0.6–1.2 gallons of water per square foot, every week throughout the growing season. For an apple tree, this means about 5 gallons a week. We designed this kit to make it more effective at delivering water where your plants need it most, and to make assembly and disassembly easier. The star of the show is **9125** Emitter Tubing, which we learned about from landscaping gurus Robert Kourik and Lee Reich. This tubing makes it a cinch to supply each plant with two or more emitters, and it minimizes leaking and clogging. This kit will irrigate up to 10 trees spaced every 25'. If you're irrigating bushes, shrubs, or canes with closer spacing, you'll want additional fittings to match the number of plants. Setup instructions are included. Requires two 25' garden hoses, not included. Email john_paul@fedcoseeds.com for help.

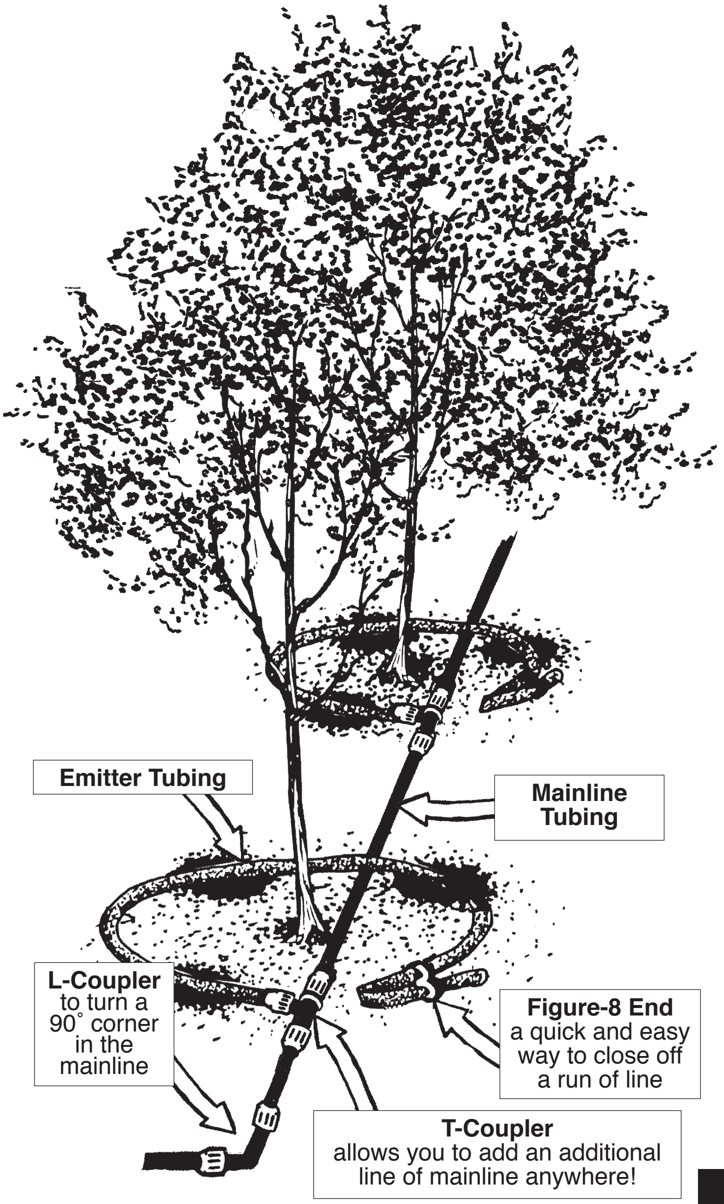
Includes the Spigot Connection Set (see bottom opposite), and:
- 200' of 1/2" polyethylene mainline tubing
- 50' Emitter tubing, 18" spacing
- Hose Y w/ valves
- Smart Loc beginning (one additional)
- 2 L-couplers
- 8 T-couplers
- 10 Figure-8 ends
- 50 Earth Staples

***9104 A**: kit (22#) for $150.00 ★*



How much water am I saving?

Summer of 2016 in Maine was the driest in decades. Many growers ran their wells dry trying to irrigate their crops. Drip irrigation came to the rescue and proved its efficacy by conserving energy and eliminating the "wasted water"—irrigation water not used by the crops typical of other irrigation methods. Although modern drip irrigation has been around for more than 60 years, the debate about how much water it saves is ongoing, and there is no conclusive evidence about the effects of large-scale drip-irrigation systems on the recharge rate of aquifers. But with drip irrigation the decrease in water use (up to 70%) and increase in yields reported from farms of all shapes and sizes is significant. Little water is lost to evaporation, especially where a good layer of mulch is used to protect the piping from UV radiation. Further, drip irrigation gives the grower more precise control over the distribution of water to crops on a needs basis.

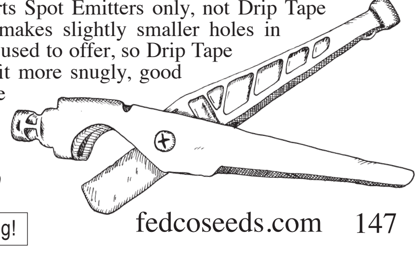

Emitter Tubing
Mainline Tubing
L-Coupler to turn a 90° corner in the mainline
Figure-8 End a quick and easy way to close off a run of line
T-Coupler allows you to add an additional line of mainline anywhere!

Emitter Tubing Like a hybrid between mainline tubing and drip tape: 1/2" hose with pre-installed 1 gph emitters every 18" or 36". May be used alone on crops like squash, tomatoes or highbush blueberries. For orchard irrigation, run circles or semicircles of emitter tubing around each tree and connect them with mainline tubing from your water source. No external parts to snap off or leak, provides consistent water flow regardless of slope or hose length, and does not clog as easily as soaker hose. Much more durable than drip tape: with proper care, tubing will last 10 years or more. Requires water pressure of 10–50 psi. We recommend **9114** 40psi Pressure Regulator. 18" emitter tubing has a maximum single row length of 350'. 36" emitter tubing has a maximum single row length of 550'.

***9122 A**: 100' with 36" spacing (5#) for $70.00*
***B**: 500' with 36" spacing (30#) for $235.00 ★*
***9125 A**: 100' with 18" spacing (5#) for $75.00*
***B**: 500' with 18" spacing (30#) for $250.00 ★*

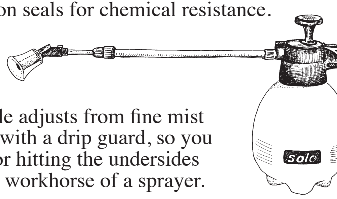
Punch N Cut Don't worry, this isn't a tool for the bully's arsenal. Three tools in one: punches holes in **9119** Mainline for **9161** Drip Tape Fittings or **9185** Spot Emitters, cuts Mainline and **9122**, **9125** Emitter Tubing, and inserts **9185** Spot Emitters. Each is an improvement on what we've offered before. Punching mechanism is easier on the hand muscles than other punches, and is quite accurate. Cutting mechanism makes square, clean cuts more easily and reliably than scissors or Felco pruners. Inserting mechanism (opposite end from the punch) is more ergonomic than using bare hands to force emitters into mainline (inserts Spot Emitters only, not Drip Tape Fittings). *Note*: this punch makes slightly smaller holes in Mainline than the punch we used to offer, so Drip Tape Fittings and Spot Emitters fit more snugly, good because it reduces the chance of leaking, but they are slightly harder to install and remove. **NEW!**

***9195 A**: (0#) for $30.00*



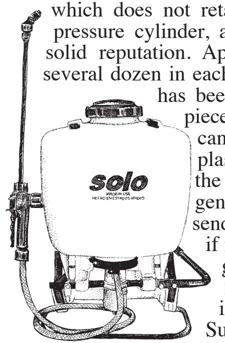
SPRAYERS

SOLO® 420 2-L Hand Sprayer Reliable Solo quality for the home gardener, or for use in the greenhouse or grow room. Polyethylene tank has a 2-liter capacity. Piston pump with Viton seals for chemical resistance. (Don't use with gritty materials like Surround.) Nozzle wand telescopes from 12" for close-up work to 23" for ground-level spraying without stooping. Wand is not removable. Nozzle adjusts from fine mist to coarse spray and is multi-directional with a drip guard, so you can spray from any direction—useful for hitting the undersides of leaves! A compact and versatile little workhorse of a sprayer. Manufactured in Taiwan.



*9223 **A**: sprayer (5#) for $27.50*

SOLO® Backpack Sprayer Our efforts to carry a backpack sprayer that retails for under $100 brought us nothing but grief in the form of quality complaints. So we sought shelter in the tried-and-true Solo deluxe model, which does not retail for under $100 but does offer an adjustable pressure cylinder, a brass nozzle, excellent parts availability and a solid reputation. Apparently it deserves its reputation—we've sold several dozen in each of the past few years and pretty much everyone has been happy. We have learned that the black plastic piece that connects to the hose from the pump handle can be a bit tender: make sure the two white bolted plastic pieces are firmly tightened, and don't pump the sprayer roughly. However, SOLO offers a pretty generous one-year warranty on this sprayer and will send you free replacement parts within that timeframe if necessary: just call them at 1-800-765-6462. Four-gallon polyethylene tank. Horizontal spray distance 25'; vertical spray distance 20'. Diaphragm pump is suitable for spraying wettable powders like Surround, which will quickly destroy piston pumps. Please join us in eschewing cheap sprayers! Also, please do your part to extend your sprayer's life by assembling gently and cleaning thoroughly after each use. Manufactured in the USA.



*9231 **A**: sprayer (30#) for $175.00 ★*

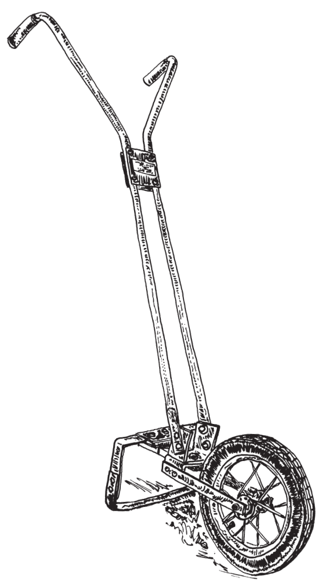
VALLEY OAK TOOLS

Valley Oak Wheel Hoe Built to last and to stand up to years of heavy use. Rugged steel wheel. Tempered steel blade cuts weeds off 1/2" to 2" below the ground, on both the push and pull stroke. Weed close to your rows. Save the tiller for breaking ground: work with no toxic fumes, and listen to the birds while you hoe. Available with a cutting width of 5" (good for narrow spaces—a favorite of onion growers) or 8". Shipped to you directly from the manufacturer. Made in the USA.

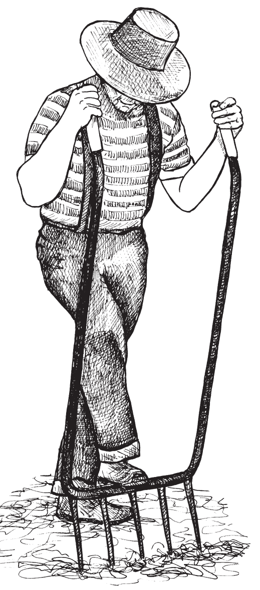
*9240 **A**: 5" blade, drop-ship (0#) for $375.00 ★*
***B**: 8" blade, drop-ship (0#) for $375.00 ★*

Valley Oak Broad Fork 12" tines dig and break up compacted soil more deeply than a rototiller, aerate and loosen without destroying the soil structure. Fork is 18" wide with 5 tines, which are reinforced with 1/4" steel gussets to prevent bending. Rugged steel handles. A sturdy well-balanced tool. Shipped to you directly from the manufacturer. Made in the USA.

*9249 **A**: broad fork, drop ship (0#) for $315.00 ★*



Valley Oak Wheel Hoe

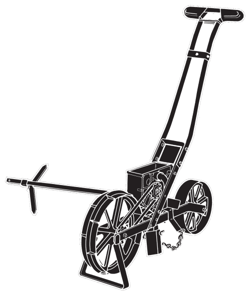


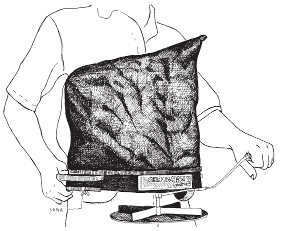
Valley Oak Broad Fork

EARTHWAY® SEEDER AND SPREADER

EarthWay Vegetable Seeder In one continuous operation the seeder opens the soil, spaces, plants and covers the seed, packs the soil, and marks the next row. Reliable performer for the large garden or small farm. Includes 6 seed plates: carrots, beans, corn, peas, radish and beets. A real time-saver, especially for corn, beans and peas. Manufactured in the USA. See our website for **attachments** and **additional seed plates**.

*9252 **A**: seeder (10#) for $160.00 ★*





EarthWay Broadcast Spreader Spread seed or granular fertilizer evenly and accurately. This spreader has a zippered nylon bag, a shoulder strap and an enclosed gear box to keep dirt out of the die-cast zinc gears. Manufactured in the USA.

*9255 **A**: broadcast spreader (10#) for $50.00*

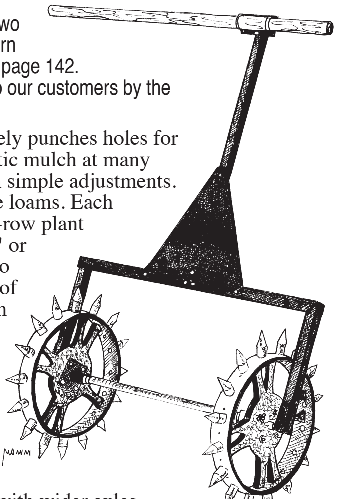
TWO BAD CATS TOOLS

Yankee ingenuity at its best. These nifty tools are designed and manufactured by Two Bad Cats, a father-son team in southwestern Vermont. Also see **8893** Wire Weeders on page 142.

The items below are shipped directly to our customers by the manufacturer.

Infinite Dibbler Quickly and accurately punches holes for transplants in bare soil or through plastic mulch at many in-row and between-row spacings with simple adjustments. Most effective on sandy soils or friable loams. Each wheel may be set independently for in-row plant spacings of 3", 4", 6", 8", 12", 15", 22" or 41", while the wheels clamp securely to the axle for almost infinite adjustment of between-row spacing up to a maximum of 24". Comes with two wheels to mark two rows at a time, but you can buy extra wheels (see below) if you want to mark three rows 12" apart or four rows 8" apart. 36" oiled ash handles, red powdercoat finish on frame. Hard aluminum dibbles are 2 1/2" long and 1" in diameter.

We can also special order dibblers with wider axles—please email ogs@fedcoseeds.com for more information.

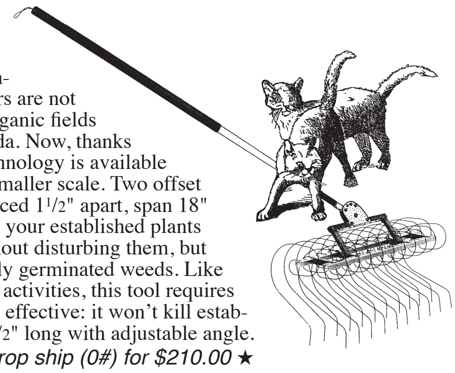


*9258 **A**: dibbler, drop ship (0#) for $460.00 ★*

Dibbler Wheel In case infinity isn't big enough for you.

*9258 **B**: dibbler wheel, drop ship (0#) for $160.00 ★*

Tine Weeder
Tine weeding, also called blind harrowing, is a favorite technique among organic grain farmers—45' wide tine weeders are not an uncommon sight on organic fields in the Midwest and Canada. Now, thanks to Two Bad Cats, this technology is available for those operating on a smaller scale. Two offset rows of flexible tines, spaced 1 1/2" apart, span 18" across and will go around your established plants (and your drip tape!) without disturbing them, but will wreak havoc on barely germinated weeds. Like so many farm and garden activities, this tool requires well-timed use to be truly effective: it won't kill established weeds. Handle 56 1/2" long with adjustable angle.



*9261 **A**: weeder, drop ship (0#) for $210.00 ★*

★ When you see the star, this item qualifies your entire Organic Growers Supply order for a volume discount. Take an additional 5% off December orders!
Orders over $100 deduct 5%
Orders over $300 deduct 10%
Orders over $600 deduct 15%
Orders over $1200 deduct 20%

Where are the Smart Carts?

To order Smart Carts, check our website, fedcoseeds.com/ogs/. You will also find our Smart Water Carts for moving water in the summer and hauling firewood in the winter. Carts can be shipped directly to you.

WHO'S WHO IN THE GARDEN

Wooden Pot Labels Untreated wooden sticks for labeling seedlings. Our inventory is in transition: our new supplier sends us 5x5/8" labels, but we still have a few of the old 6x3/4" labels in stock. We will send you whichever size we please, unless you really think size matters, in which case please drop us a note with your order and we will do our best to accommodate you. Made in Maine from New England white birch.

9289 ***A****: bundle of 50 (0#) for $4.50*
B*: case of 1000 (5#) for $36.00*

Treated Wooden Garden Stakes Treated with non-toxic white paint, these are the official stakes in Fedco trials. At the end of the summer, names stand out clearly and the stakes show little deterioration, even where they have been in contact with the soil. 12x1 1/8". Made in Maine.

9292 ***A****: bundle of 25 (0#) for $10.00*
B*: case of 250 (10#) for $52.50*

Field Stakes You won't lose these variety markers in the undergrowth. Longer and thicker than the garden stakes, these untreated field markers are easy to spot in the thickest bean bushes. 18x1 1/4x1/4". Made in Maine.

9298 ***A****: bundle of 25 (2#) for $17.50*
B*: case of 100 (10#) for $50.00*

Vinyl Plant Tags John Bunker says vinyl siding works so well as an outdoor label that "we should remove it from all the houses in the world and make it all into plant tags." For those disinclined to make their own, we're now offering these, made locally out of genuine reclaimed vinyl from the historic Bridge Farm in Dresden, ME. Label measures approx. 4x4" and is a nearly indestructible 45 mil thick, with a hole drilled in one corner for a wire so you can hang it. Write on them with pencil, not marker, for a tag that will help you identify your apple tree from now until Armageddon.

9301 ***A****: bundle of 25 (0#) for $20.00*

Cap Style Plant Markers Zinc-coated nameplates on galvanized steel legs provide permanent outdoor labeling. 10 1/2" tall with a 7/8x2 1/2" horizontal nameplate. Comes with marking pencil.

9304 ***A****: bundle of 25 (0#) for $17.00*
B*: bundle of 100 (5#) for $60.00*

Aluminum Label Tags Permanent all-weather tags with wires, especially for labeling trees. Can write on both sides.

9310 ***A****: 25 tags (0#) for $8.00*

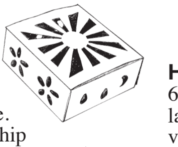
PACK UP THE HARVEST

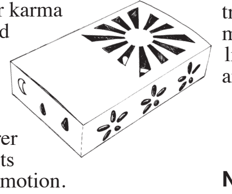
Harvest Baskets Old-time wooden lath and wire baskets in bushel, half-bushel, peck and half-peck sizes. Classic and effective. We sell hundreds every year at the Common Ground Fair. Bushels and half-bushels have a wire loop on each side for handles, pecks and half-pecks have a wire bail with a wood handle. Made in PA.

9337 ***A****: 3 bushel baskets (10#) for $19.00*
B*: 3 half-bushel baskets (10#) for $15.00*
C*: 3 peck baskets (5#) for $15.00*
D*: 3 half-peck baskets (3#) for $14.00*

Cloth Produce Bags It's 2020, and we see the future as plastic free, or at least heading in that direction! Instead of smothering your produce in wasteful single-use bags, use these lightweight and breathable unbleached cotton gauze bags. Also good for bagging up rice or beans at the co-op (the weave is too open for flour or other dusty materials). Even commercial growers could use these on a deposit-and-exchange system at farmers markets or for CSA shares. Bags measure 8.5x11" and weigh just 0.4 oz (11g). Machine washable in cold water; air-dry. Set of 3. **NEW!**

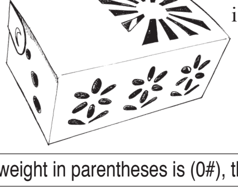
9340 ***A****: set of 3 (0#) for $20.00*





Sun Sugar Boxes An environmentally friendly alternative to plastic clamshells (which are difficult even to recycle any more, now that China is understandably refusing to take our trash) or even the classic moldboard berry boxes, which are soaked in artificial dye and are bulky to ship both into and out of our warehouse. These boxes are recyclable and compostable cardboard and they ship flat, so they are more fuel-efficient to move around. If better karma alone is not enough to win you over, they are also lidded and stackable so they do a better job of protecting your produce. And they're pretty, too! The vent holes are shaped like suns, raindrops, flowers and earthworms. Labels will affix to them more easily than to molded berry boxes. The quarts and pints assemble in five easy steps (the manufacturer says their workers can fold 100 boxes an hour); the half-pints have an ingenious auto-folding design and assemble in one motion. Auto-folding pints may be available later this year; check our website for updates. Exterior dimensions assembled: Half-pint is 4" x 4 1/8" x 1 1/2"; Low-profile pint is 7" x 4 1/2" x 1 1/4"; Quart is 7" x 4 1/4" x 3". **NEW!**

9353 ***A****: 25 half-pints (0#) for $10.50*
B*: case of 200 half-pints (10#) for $75.00*
C*: 25 pints (0#) for $9.00*
D*: case of 150 pints (14#) for $48.75*
E*: 25 quarts (0#) for $14.00*
F*: case of 200 quarts (22#) for $100.00* ★

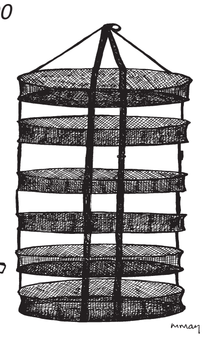


Cardboard Berry Boxes Classic molded-paper berry boxes in half-pint, pint and quart sizes.

9352 ***A****: 50 half-pints (2#) for $9.00*
B*: case of 600 half-pints (50#) for $99.00*
C*: 50 pints (2#) for $12.00*
D*: case of 420 pints (50#) for $75.00*
E*: 50 quarts (2#) for $14.00*
F*: case of 250 quarts (35#) for $70.00*

Collapsible Drying Racks 36" diameter round shelves of durable polyester netting in a metal frame. Center strap for improved weight support. Perfect for drying flowers and herbs of all types. Rack has 6 tiers that snap together so you can reconfigure them to suit your needs. A total of 42 sq ft of surface area!

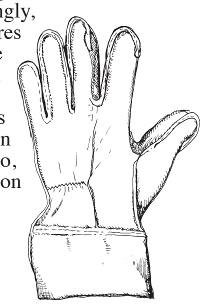
9358 ***A****: drying rack (10#) for $45.00* ⇦



GARDEN GARB

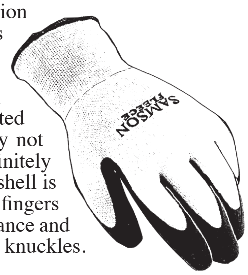
See waterproof insulated chore gloves on page 134 in the Livestock Supplies section.

Vermont Gloves You can't possibly work harder than these top-notch leather work gloves. Rugged goatskin body with a 4" cowhide cuff and double nylon stitching. The patented thumb design offers improved comfort and durability. Absolutely worth the investment: will outlast other leather work gloves three or four times over. They have been popular holiday gifts among our customers. A family business founded in 1920 in Randolph, VT, Green Mountain Gloves started out making silk dress gloves but soon developed a specialty in heavy-duty leather work gloves. Two customers contacted us in 2017 after NPR ran a story about the company's struggle to survive in an era of cheap imported competition: they were down to one sewing machine and four employees producing twenty dozen gloves a month, with no promise of a successor for the aging owner. Cheeringly, the company found a young successor after all, who shares his predecessors' values but has also revamped the company's online presence and branding (including a name change). The company's Luddite quirkiness and devotion to quality in a world that cuts corners, ignores human costs, and demands uniformity seemed to fit in with Fedco's values like hand and glove. And, like Fedco, Vermont Glove now runs on solar energy! Size is based on measurement around knuckles.



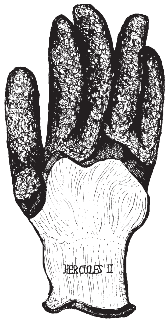
9390 ***A****: small 8-9" (0#) for $92.50*
B*: medium 9-10" (0#) for $92.50*
C*: large 10-11" (0#) for $92.50*
D*: x-large 11-12" (0#) for $92.50*

Samson Gloves Whether you need to kill a lion with your hands, massacre a thousand Philistines with an ass's jawbone, or dig turnips out of half-frozen mud in late October, regular garden gloves just won't cut it anymore. Our Samson gloves will keep your fingers warm and protected in harsh gardening conditions; they may or may not confer superhuman strength, but you will definitely feel less homicidal. Fine-knit stretchy polyester shell is lined with thick soft acrylic fleece. The palm and fingers are dipped in natural latex to provide water resistance and good grip. Size is based on measurement around knuckles. Snug fit: order a size up if you're not sure.



9391 ***A****: medium 8-9" (0#) for $8.00*
B*: large 9-10" (0#) for $8.00*
C*: x-large 10-11" (0#) for $8.00*

Hercules Gloves Knit gloves of 35% cotton and 65% polyester coated with durable pebbled black latex. Very flexible; partially uncoated back for better ventilation. A real hit in the warehouse for handling trees. Good protection in any wet muddy situation; mosquito proof. Excellent in the cold with wool or silk liners. Double-knit cuff. Size is based on measurement around knuckles.

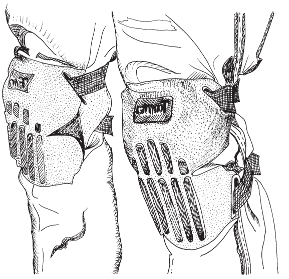


9392 ***A****: medium 8-9" (0#) for $7.00*
B*: large 9-10" (0#) for $7.00*
C*: x-large 10-11" (0#) for $7.00*

Nitrile Gloves Snug-fitting knit poly-nylon shell is dipped in nitrile, a marvelously gripping soft rubber that latex-sensitive people can use. Snug fit and tacky surface preserve dexterity. Backs are partly uncoated to improve ventilation. Your hands get wetter (therefore colder) in wet situations than they do with the more completely coated Hercules Gloves. Machine washable. Size is based on measurement around knuckles. If in doubt, order the smaller size.

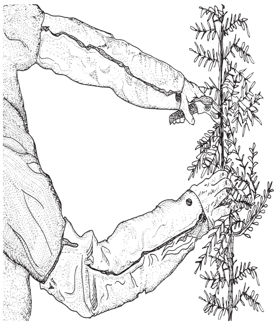
9395 ***A****: x-small 5-6" (0#) for $8.00*
B*: small 6-7" (0#) for $8.00*
C*: medium 7-8" (0#) for $8.00*
D*: large 8-9" (0#) for $8.00*
E*: x-large 9-10" (0#) for $8.00*

MORE GARDEN GARB



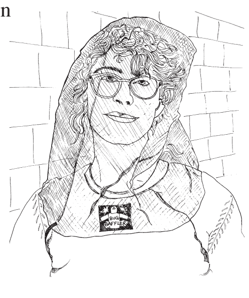
Knee Pads The best for wearing in the garden. Unlike most knee pads, which buckle around the back of the knee, these pads feature two heavy-duty 1¼" elastic straps with velcro: one at the lower thigh, one at the upper calf. This improves your comfort in a kneeling position and helps prevent the pads from falling down to your ankles when you walk. The outside surface is solid plastic for easy cleaning. Lined with cushiony closed-cell polyolefin foam, which doesn't hold water. Garden in comfort, with no more rocks denting your kneecaps!

***9398 A**: pair (3#) for $25.00*



Arm Guards Slipped over your forearms and gloves, the heavy close-woven canvas protects you from the unkind cuts of rose thorns, thistle spines and other prickly peril. Staffer Carol Doyle reports that the pair she tested "work wonderfully!" She successfully pruned the nastiest portion of her blackberry patch without getting her shirt snagged or her arms scratched. She further praised the Arm Guards for not restricting arm motion "and they are loose enough so they don't feel as if the circulation is being cut off by something too tight around the wrist and elbow. I'll be glad to get the berry bushes cleaned up this year!" One size. One pair.

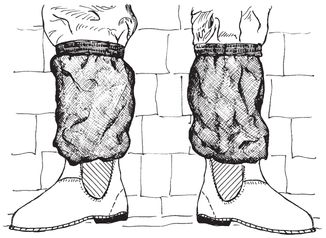
***9401 A**: pair (0#) for $12.00*



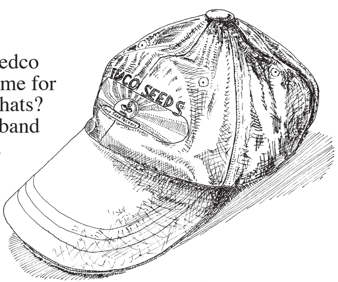
Bug Baffler Headnet What is the one sure sign that spring is really here and it's time to set out the transplants? Black flies. Slip on this headnet and work in comfort, smug in the knowledge that there will be no flies biting your face today. Lightweight fine-mesh black nylon lets breezes in and makes the outdoors liveable again with chemical-free insect protection. Patented hood design allows plenty of room for a hat, and seamless construction permits unobstructed vision. Elastic bands slip under arms to hold the hood securely in place. Perfect for bee observation. One size.

***9441 A**: headnet (0#) for $9.50*

Bug Baffler Ankle Guards These days everyone in New England probably knows someone who has suffered from tick-borne illness. If humans manage to pollute and exploit themselves into oblivion, ticks will probably be the next dominant species on the planet. Meanwhile, here's a non-toxic and affordable layer of protection against the nasty little things. No need to wear your pants tucked into your socks—mesh ankle guards have stretch knit bands at the ankle and elastic bands at the calf to keep ticks and blackflies off your legs. Pull over socks before putting shoes on, then roll up over your pantlegs. One size.



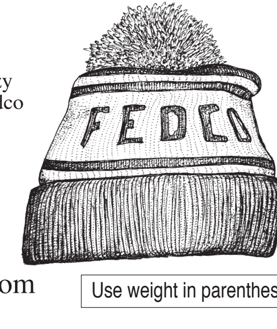
***9442 A**: pair (0#) for $9.50*



Fedco Cap Nothing says style like a Fedco cap. Classic low-profile ball caps: is it time for Fedco to switch to those hipster trucker hats? You tell us. Cotton with adjustable headband and the classic Co-op Seedpackers logo. Check online to confirm availability of your preferred color. If you order a color that's out of stock, we'll send a different color.

***9404:** Fedco cap (0#) for $18.50*

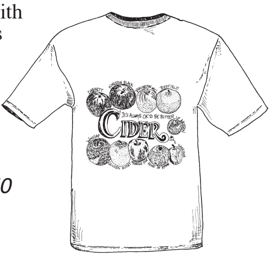
***A**: gray* * **B**: khaki*
***C**: blue* * **D**: black*
***E**: pink* * **F**: yellow*



Fedco Toque with Pompon Don this cozy green and gold cap, and you too can be a Fedco Elf, spreading agricultural good cheer. 100% acrylic knit fabric is warm, washable, and doesn't itch. One size.

***9410 A**: one size (0#) for $18.50*

Our classic Fedco logo shirt and other styles are available on our website.



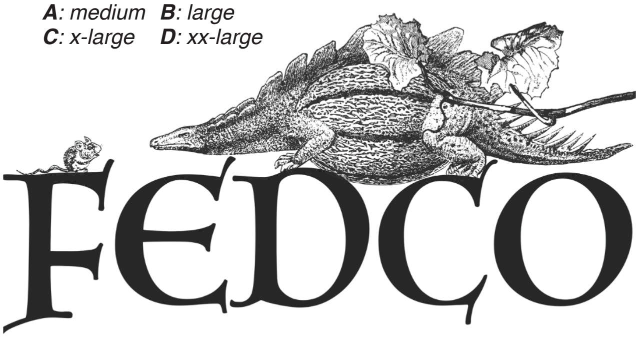
Cider Shirt Celebrate your favorite fall drink with our popular cider t-shirt, featuring John Bunker's full-color paintings of ten of the most famous English, French and American cider apples and the catchphrase "it's always ok to be bitter." Two styles: scoopneck fitted tee; or crew-neck relaxed-fit tee. Both styles are white 100% organic cotton.

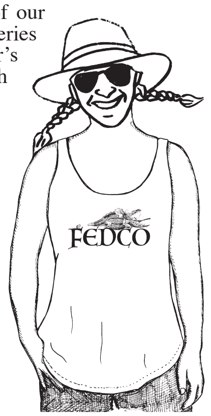
***9425:** scoopneck fitted tee (0#) for $22.50*

***A**: small* * **B**: medium*
***C**: large* * **D**: x-large*

***9428:** crewneck tee (0#) for $22.50*

***A**: medium* * **B**: large*
***C**: x-large* * **D**: xx-large*





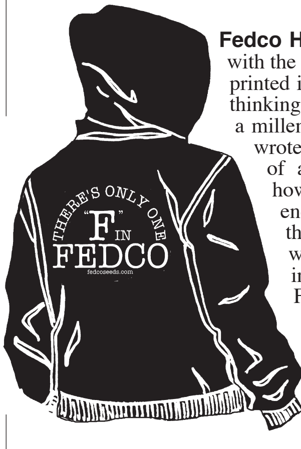
Fedco Shirt & Tank In honor of Gene Frey's imminent retirement from the Seeds branch of Fedco, we are printing his "dino-melon" design on these shirts. For 40 years, Gene has led Seeds warehouse operations with virtuosic flexibility, unflappable patience, and a depth of knowledge that is daunting to contemplate in light of his upcoming absence. He created the dino-melon in October 2004. When the Red Sox were making a record-setting comeback in the AL Championship Series, on his car radio Gene kept hearing Yankees fans chanting "Who's your daddy?" at Sox pitcher Pedro Martinez. "It got me thinking about the parentage of our seeds, especially GMOs," he says, and he created a series of weird hybrid graphics along this theme for that year's Seeds catalog. "They wouldn't let me print it with the 'Who's Your Daddy?' caption, though." Choose between a standard crewneck t-shirt in cream-colored organic cotton or a relaxed-fit white poly/cotton tank with a curved hem and a scoop neckline, both with the design printed in an earthy brown. Versatile, like Gene: casual enough for the country, but presentable for an excursion to town. **NEW!**

***9453**: crewneck tee (0#) for $25.00*

***A**: small* * **B**: medium* * **C**: large*
***D**: x-large* * **E**: xx-large*

***9454**: tank (0#) for $20.00*

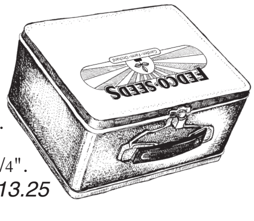
***A**: x-small* * **B**: small* * **C**: medium*
***D**: large* * **E**: x-large* * **F**: xx-large*



Fedco Hoodie Cozy full-zip black hooded sweatshirt with the cheeky slogan "There's only one 'F' in Fedco" printed in white on the back. (If you don't get it, keep thinking about it and say it. If you still don't get it, ask a millennial.) Gene got it from a soccer chant, Aktan wrote it on a trash can and it has become something of a byword around here. It reminds us both how wonderfully unique our workplace is and encourages unity among all Fedco workers, even though we work in different warehouses (each with its own slightly different culture), all while indulging our love for wordplay. Share the Fedco pride and stay warm for cider pressing and spring planting. 90% cotton, 10% poly. Hoodies run large. **NEW!**

***9433:** hoodie (2#) for $34.50*

***A**: small* * **B**: medium* * **C**: large*
***D**: x-large* * **E**: xx-large*



Fedco Carrying Case This nifty metal lunchbox serves myriad uses for kids, gardeners and farmers alike. Perfect for toting scoobie snacks out to the field, or for holding your spare shear bolts on the tractor. We use ours to keep seed packets dry while gardening on drizzly days. Looks as old-school as our catalog with the sharp Fedco Seeds logo on a silver background. 4x6x7¾".

***9452 A**: Fedco Carrying Case (0#) for $13.25*

BOOKS

Looking for a title listed recently but not this year? Check our website for clearance titles. Reviews written by Aktan Askin, Roberta Bailey, Elisabeth Benjamin, John Bunker, Clayton Carter, Holli Cederholm, Laura Childs, Alice Coyle, Nikos Kavanya, Susan Kiralis, CR Lawn, Jacob Mentlik, Sarah Oliver, Jen Ries, John Paul Rietz and David Shipman.

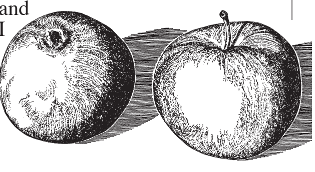
Fedco Cover Art Whimsical and beautiful black-and-white art is a hallmark of Fedco's unique style, our way of counterbalancing the glossy, airbrushed color photos typical of most of the seed-catalog world. Now some of our art can grace your walls! High-quality 12x18" prints on heavy matte cardstock are suitable for framing or thumbtacking. Choose from the 2019 cover (a noble warrior guarding her seeds as she navigates the seas in a Delicata squash), 2017 cover (our superhero Magic Molly soaring through a vegetable galaxy), 2015 cover (Art Deco poppies with bees), the 2010 cover (surrealist small plane flying over a cloud of cauliflower), the 2005 cover (peasants sheaving grain, with a quote from Deuteronomy about gleaning), or the 2000 cover (a fantastic scene of Father Time with an organic-agriculture New Year baby ushering out the demons of conventional farming).

9468 *Fedco Cover Art Poster (0#) for $3.00*

***A**: Year 2000*	***B**: Year 2005*	***C**: Year 2010*
***D**: Year 2015*	***E**: Year 2017*	***F**: Year 2019*

F E D C O
2000
FEDCO
FEDCO
2010
FEDCO
2015
FEDCO 2017
FEDCO SEEDS & SUPPLIES 2019

Apples and the Art of Detection: Tracking Down, Identifying and Preserving Rare Apples by John Bunker, 407 pages, 8$^{1}/_{2}$x11, softcover. I've been listening to John Bunker talk about apples for as long as I can remember. The old varieties and why we should rescue them, the Johnny Appleseeds of America, and the shocking truth that you can't plant an apple seed and expect to get the same apple (gasp!). Because I'm an editor, I had the honor of contributing to my brother's masterpiece: *Apples and the Art of Detection*. I realized right away that this book, brilliantly framed as a Sherlock Holmes detective story, belongs not only on the shelf of anyone interested in apples; it is also for those who want to learn about the old-timey experts behind the scenes. In other words, John's mentors. We are introduced to these salt-of-the-earth characters and their apple orchards, and we fall in love with all of them. As a layperson, I especially enjoyed those sections, but I was also impressed with the precision and eloquence with which the science is presented. *Apples and the Art of Detection* has photographs and artwork galore, and is beautifully illustrated by the author himself. -Emily Bunker **NEW!**



***9470A**: Apples and the Art of Detection (0#) for $30.00*

The Apple Grower: A Guide for the Organic Orchardist by Michael Phillips, 2nd edition, 320 pages, 8x10, softcover. The book you need to grow apples organically. Research aimed at reducing the use of synthetic poisons in the orchard has produced heartening results in recent years. Since *The Apple Grower* first appeared, two important products for organic orchardists, Surround (**8720**) and Entrust (**8759** on our website), make it possible to grow very decent apples organically. This revised and expanded version includes apple-growing basics from A to Z, as well as the latest research and strategies for successful organic orcharding. Michael has read the studies, done the interviews, tested the products and found an effective way to organize the information and communicate it to the rest of us. -JB

***9471A**: The Apple Grower 2nd Ed. (0#) for $36.25*

The Apples of New England by Russell Steven Powell, 214 pages, 7$^{1}/_{4}$x7$^{1}/_{4}$, hardcover. Apples were planted in New England as far back as 1604 when the French explorer Pierre du Gua, the sieur de Monts, started an orchard on St Croix Island just south of Castine. From the beginning of European settlement, apples and cider played a great role in making life here palatable. People who lit out carried apple seeds with them, concerned less about the varieties they were carrying than the potential of those seeds to supply food and drink. The cultivation was so intense that Don Bussey's recent seven-volume encyclopedia, *The Illustrated History of Apples in North America*, catalogs 17,000 varieties. Much shorter than Bussey's opus, with descriptions of 162 varieties of historic or commercial importance, this book is a pleasure. It's a well-written brief, but dense, history of apples and the folks who spread them throughout New England. A handy guide for exploring and rediscovering our apple heritage. -DS

***9474A**: The Apples of New England (0#) for $19.75*

Apples to Cider: How to make cider at home by April White with Steve Wood, 152 pages, 8x10, softcover. The current revolution in fermented cider has been an effort of thousands of enthusiasts from all over the country. But to my mind no one has been more influential than Steve Wood of Poverty Lane Orchards and Farnum Hill Cider. Steve has teamed up with April White to create a clear detailed explanation of how to make cider. Cider history and explanations of styles and terminology are interspersed with Steve's diary-like observations. Of particular note is an excellent chapter on how to taste and describe cider. Set amidst the orchards and cider room at Farnum Hill, you'll come away feeling like you know the people and the place. How to choose amongst the many excellent books about cider? Whether a beginner or an expert, if you're into cider, you won't be disappointed by this one. -JB

***9477A**: Apples to Cider (0#) for $25.00*

The Art and Science of Grazing by Sarah Flack, 230 pages, 8x10, softcover. A cow can turn grass into butter and hamburgers: what's your superpower? Flack combines hard-headed science with practical experience, an approachable tone and a palpable love for grazing animals. After a brief introduction to various grazing systems, she splits the body of the book into two parts: the first addresses soil health, pasture species and pasture management, while the second covers ruminant nutrition, grazing behavior and veterinary concerns related to grazing. The final section ties all these principles together to guide graziers through the process of designing pasture-management plans suited to the needs and characteristics of their farms. Relevant to small ruminants as well as to beef and dairy cattle, and includes trending topics like zero-grain dairying and the accurate measurement of dry matter intake. -AC

***9480A**: The Art and Science of Grazing (0#) for $35.50*

The Art of Natural Cheesemaking: Using Traditional, Non-Industrial Methods and Raw Ingredients to Make the World's Best Cheeses by David Asher, 320 pages, 8x10, softcover. More often than not, something is missing in cheese these days—even when it tastes good, whether it is made artisanally or just off the ship from abroad. A mysterious element sets some cheeses apart as "the best." David Asher assures us that this missing ingredient is nothing more than a foundational connection to, and cooperation with, nature: the seasons, the fauna and flora and, especially, the microbes. The methods detailed in this book suggest a traditional yet radical approach to cheesemaking that reflects Asher's "fermentationism," and his belief that all bacterial and fungal cultures needed to make good cheese are native to good raw milk. No fancy equipment or weary lab-grown cultures needed. To make the best cheese, smell the milk and trust your clabber, harvest and process your own rennet, keep your own *Penicillium roqueforti* on homemade sourdough bread, backslop your whey for starter culture, don't wash your milk bucket, respect your kefir, improvise your own cheese forms and just say no to Big Dairy. Both a manifesto and a framework. You'll find 35 recipes with beautiful photographs to guide the way. -AA

***9486A**: Art of Natural Cheesemaking (0#) for $34.75*

Attracting Beneficial Bugs to Your Garden: A Natural Approach to Pest Control by Jessica Walliser, 240 pages, 8x9, softcover. It's mid-August and the tomatoes are just starting to ripen. You go out in the evening and are dismayed to see vines bitten off and gouges in the flesh of the fruit as though someone had taken a rasp to it. You know who the culprits are but, try as you might, and as large as they are, you can't see them. Why strain your eyes when parasitic wasps are eager to find a place to raise their children? We all know about the benefits of beneficials. Here in one well-written and researched, handsomely illustrated book is everything you need to know about who the beneficial insects are, whom they target, which plants support them throughout their life cycles and provide camouflage so the blood-thirsty adults can catch their prey unawares. A comprehensive introduction to beneficial insects and a guide to the plants and garden designs that lure them in and support them. -DS

***9489A**: Attracting Beneficial Bugs (0#) for $24.75*

The Backyard Orchardist: A complete guide to growing fruit trees in the home garden by Stella Otto, 2nd edition, 320 pages, 6x9, softcover. An in-depth easy-to-read guide for novice and experienced backyard orchardists. First published over two decades ago, it is a delight to have this new revision. Well organized and illustrated, covers variety and site selections, soils, pruning, diseases, pollination and more. This expanded 2nd edition offers readers additional information on planning considerations for new orchards, pest management, harvest and storage. You'll find individual sections for every tree fruit in the Fedco Trees catalog. 41 charts, 95 illustrations. Lots of answers for all your orchard questions -RB, JPR

***9495A**: The Backyard Orchardist (0#) for $22.50*

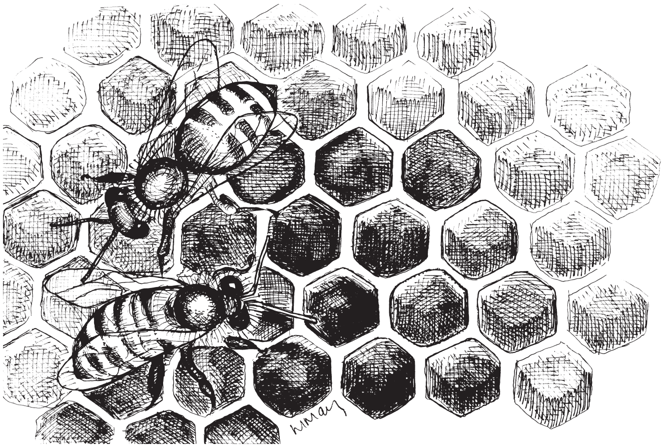
Free shipping on all books!

The Beekeeper's Bible:* *Bees, Honey, Recipes & Other Home Uses by Richard Jones, 416 pages, $7\frac{3}{4}$x10, hardcover. What do books and bees have in common? You can never have too many in your life! This hefty tome could serve as the text for an Intro to the Honeybee class. Skip the expensive tuition and snuggle in for bee history, mythology, biology, beekeeping techniques, recipes and so much more. It's all here: whether you're wondering how to light your hive smoker, or wishing you had a sewing pattern for a bumblebee costume. -EB

***9498A**: The Beekeeper's Bible (0#) for $34.00*

Bees: A Honeyed History by Piotr Socha, 80 pages, 11x15, hardcover. This big, impressive, amusing and boldly illustrated book is an encyclopedia of the honey bee, translated from the Polish. Should be of interest to anyone who likes bees, history, diagrams, information or fun. Geared toward younger readers, but definitely not dumbed down for them. As an amateur beekeeper I've read many books about honeybees written for adults, yet this sprawling homage to the bee and its keepers was packed full of stuff I didn't know. My only complaint is I don't have a shelf tall enough to accommodate the book's 15" height. -EB

***9501A**: Bees: A Honeyed History (0#) for $24.75*



Bread Earth and Fire: Earth Ovens and Artisan Breads by Stuart Silverstein, slightly revised 2nd edition, 296 pages, 6x9, softcover. Fired by his visit to the Poilane Bakery in Paris with its vast array of wood-fired ovens, Stu continues his adventure with bread and wood-fired oven construction. Not a coffee table book, rather one to be smudged, creased and stained as you put your hands to work. The book describes building ovens to fit a variety of situations and budgets: mud, brick, portable, even Dutch ovens. Once built, what to bake? The many recipes give not only ingredients and amounts, but also the nuance and flavor of the experience. Amply illustrated with photographs documenting oven construction and the world of breads waiting to come out of them. With only rudimentary skills and experience, guided by his instruction and fired by his enthusiasm, you can start your own bread adventure. -NK

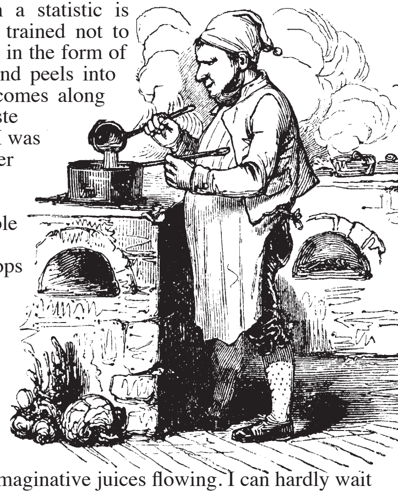
***9513A**: Bread Earth and Fire (0#) for $18.75*

Cass Turnbull's Guide to Pruning: What, When, Where & How to Prune for a More Beautiful Garden by Cass Turnbull, 365 pages, $7\frac{1}{4}$x9, softcover. I'm the kind of tree gardener who feels that one pruning book is not enough. Each one has something different to offer. Most sit on my shelf for quick reference. This is the first pruning guide I've wanted to read from cover to cover! Cass Turnbull sheds a bright—even glaring—light on pruning and what she has coined "mal-pruning." Fleshing out the details with clear how-to and how-not-to instructions along with useful illustrations and laugh-out-loud humor, she walks the reader through the basics and delves into the specifics for more than 150 plant species. Turnbull urges us to look more closely at how plants grow in order to make sense of why and how we should prune them. Chapters are grouped by plant habit (mounding, cane-growing, tree-like, vines and groundcover) so even if your favorite plants are not listed here, you can adapt the methods to meet your specific needs. -JR

***9522A**: Cass Turnbull's Guide to Pruning (0#) for $23.25*

Compost Teas for the Organic Grower by Eric Fisher, 256 pages, 7x8, softcover. Finally! A guidebook on compost teas that goes well beyond the bubbler. Drawing on a variety of research, Eric Fisher cultivates a deep understanding of compost tea that borrows from both biodynamic principles and conventional soil science. After walking the reader through the essentials of soil and plant life, the book explores myriad ways of customizing compost and compost tea for all imaginable purposes. Recipes include a root-and-shoot stimulator drench with horsetails and yarrow; an orchard and vegetable foliar spray with kaolin and yeast extract; a pralin root dip for nurseries; seedballs; willow water; BD preparations; and many more. Just as he builds on scientific findings, the author also questions the "monism" of today's science. A chapter on alternative practice subtly nudges composters to take their practices to the next level by following the moon and working with indigenous microorganisms to attune with natural cycles. Fisher's gentle and subtle tone left me with a lot to contemplate as I studied the extensive references section. -AA **NEW!**

***9530A**: Compost Teas (0#) for $20.00*

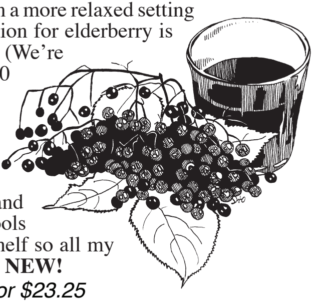


Cooking With Scraps: Turn Your Peels, Cores, Rinds, and Stems into Delicious Meals by Lindsay-Jean Hard, 189 pages, $7\frac{1}{3}$x9, hardcover. Roughly one third of food produced in the world gets lost or wasted. I'm enough of an Irish peasant that such a statistic is anathema to me, having been trained not to waste food. This usually comes in the form of cooking up the various ends and peels into soup stock. So when a book comes along with the enticement of zero-waste cooking, I'm on board, though I was skeptical the author could deliver 85 "scrumptious" recipes. Well, now I'm a believer —having made some of the truly delectable fare—while using spent coffee grounds, corn cobs and carrot tops (though *not* all together). More suited to mainstream tastes are those in the clean-out-the-crisper category: featuring tempura, strata, frittata and, yes, soup stock. While something like using beet greens is just commonsensical to us in Maine, even the commonplace recipes will get your gastronomic and imaginative juices flowing. I can hardly wait until spring to try Charred Asparagus-end Pesto. Or, when I pull my beets out of winter storage…Beet Peel Margarita, anyone? -NK **NEW!**

***9531A**: Cooking with Scraps (0#) for $20.00*

Crop Planning for Organic Vegetable Growers by Frédéric Theriault and Daniel Brisebois, 136 pages, $7\frac{1}{2}$x9, softcover. If I'd had this book when I started farming, I would have avoided many mistakes. Published by Canadian Organic Growers, it's full of tools to plan for success before your first seed hits the soil. Charts, calculations and records—all the dry bones of keeping information handy, farming profitable and certification inspections smooth. Succinct chapters move from setting financial goals to developing a marketing plan, projecting planting schedules, compiling a seed order, analyzing before planning another year. For farmers, next year always holds the promise of being better; this book could make it so. -NK

***9537A**: Crop Planning For OG Vegetable Growers (0#) for $23.50*



The Elderberry Book: Forage, Cultivate, Prepare, Preserve by John Moody, 114 pages, $7\frac{1}{2}$x9, softcover. The elderberry and humans have been together for a long time. This shrub shows up in ancient texts and in fossils from our tribals sites. Moody writes, "If the dog is humanity's best friend, then the elderberry may be its best plant friend." For generations, elder was the go-to household treatment for just about everything: dropsy, toothaches, or to remedy the effects of strangulation (apparently). For survival, people had to know their plants, and the elder was key. Everyone should have a few in their landscape, and we're lucky to enjoy them in a more relaxed setting that doesn't involve the plague. Appreciation for elderberry is making a comeback, and we're all for it. (We're offering 9 elderberry varieties in the 2020 Fedco Trees catalog!) They offer beauty, forage and sanctuary. Moody's book works because it's simple and highlights reasons to plant an elderberry bush and how to do it. He walks us through a history of the plant, its cultivation and propagation, and its many uses in food, tools and toys. I put this book on my kitchen shelf so all my favorite elder recipes are in one place. -JR **NEW!**

***9549A**: The Elderberry Book (0#) for $23.25*

The Essential Guide to Cultivating Mushrooms: Simple and Advanced Techniques for Growing Shiitake, Oyster, Lion's Mane, and Maitake Mushrooms at Home by Stephen Russell, 232 pages, 7x9, softcover. Who knew that a roll of toilet paper could grow your supper? If you want to know how, read this book. Home cultivation of mushrooms discussed from the basics (buy a kit) to the advanced (grow your own strain) in very organized and clear step-by-step instructions including what not to do. Based on the author's experiences with the successes and pitfalls of cultivation. Excellent photos. Everything you need to get started and keep going. -JR

***9555A**: The Essential Guide to Mushrooms (0#) for $24.50*

Farmacology: Total Health from the Ground Up by Daphne Miller, 209 pages, $5\frac{1}{3}$x8, softcover. Miller is a medical doctor with a unique perspective on healing that first surfaced when she read Wendell Berry's essay "The Body and the Earth" in which he connects our treatment of our bodies with our treatment of the earth. Intrigued, Miller set out to investigate the workings of seven farms in different geographical locations to see if she could discover connections to health. This book chronicles her discoveries: how a healthy soil can produce a healthy immune system; how soil microbes can communicate with your internal microbes; in short, how agricultural choices can have a positive impact on individual health. Anyone who gardens has experienced a bit of this directly, but this book puts it within a greater healthcare pattern. With 35 pages of references, you can discover the depth as well as the breadth of healing, from the ground up. -NK

***9558A**: Farmacology (0#) for $17.00*

Farming for the Long Haul:* *Resilience and the Lost Art of Agricultural Inventiveness by Michael Foley, 265 pages, 5$^{1}/_{2}$x8$^{1}/_{2}$, softcover. “This is a book about farming today with an eye to an uncertain future.” So begins the author as he frames a journey that winds through ancient agricultural systems and understandings, up through farming in the ruins of the 20th century, to the new movement toward resilience. The emphasis is *not* on a critique of the current failures but rather a revitalized historical overview of what worked (and still does) for past cultures and farming societies throughout the world to inspire us as we reinvigorate our sustainability. An account by an actual farmer, it is hopeful and pragmatic, while having boots on the ground. Politics are not avoided: false economies are called out and energy consumption challenged. But through it all, the long-held wisdom of those who work the soil is upheld, sharing techniques and ways of thinking, so that modern farmers might incorporate that sagacity into their innovations. Wide-ranging and deeply insightful, this book unpaves old ground into which a new future can be seeded. (See our interview with Foley on page 34.) -NK **NEW!**

***9560A**: Farming for the Long Haul (0#) for $19.50*

Farming While Black:* *Soul Fire Farm’s Practical Guide to Liberation on the Land by Leah Penniman, 368 pages, 8x10, softcover. The author, who many years ago trialed for Fedco, writes from the experience of her Soul Fire Farm in upstate New York to encourage and empower Black farmers. This is a radical book by an activist committed to ending racism and injustice in the food system. The opening quote from Malcolm X sets the premise: “Revolution is based on land. Land is the basis of independence. Land is the basis of freedom, justice, equality.” And the teachings that follow are both of the practicalities and the legacies of Black agricultural traditions. The chapter “Black Land Matters” has steps and resources for finding land, while also including methods to remediate lead contamination in soil. Crop planning focuses on diaspora plants, as do the recipes. And since saving seeds is essential to preserving culture, there’s an section on seed keeping. Interwoven with the techniques is a beautiful interplay of modern life as informed by tradition, spirit, story and community, as it plants the seeds of a new and liberating heritage. This book’s perspective has historically been excluded from U.S. agricultural chronicles. It addresses topics such as healing from trauma, movement building and restoring degraded land that speak to and of Black experience in ways that inform us all. (Also see page 64 for my interview with Larisa Jacobson, a co-director of Soul Fire Farm.) -NK

***9561A**: Farming While Black (0#) for $32.00*

Fermented Vegetables:* *Creative Recipes For Fermenting 64 Vegetables & Herbs in Krauts, Kimchis, Brined Pickles, Chutneys, Relishes & Pastes by Kirsten K. Shockey and Christopher Shockey, 376 pages, 8x9, softcover. With more than 140 recipes that excite and intrigue, this book is causing a stir among fermentation enthusiasts. Fermented salsas, herb pastes, chutneys, krauts and more—the book features recipes based on garden vegetables and herbs organized from A-to-Z. Tired of pesto getting funky so fast? Make a basil paste that lasts in the fridge for a year. Tired of squash? Ferment it with chipotle. Wondering how to preserve all those nettles by the compost pile? Try nettle kraut. The book covers history and science, vessels and equipment, fermenting fundamentals and advanced techniques, troubleshooting, and recipes for foraged foods. It closes with recipes to turn your fermented creations into snacks, entrees, desserts and “crocktails.” Profiles of “Fermentistas” interspersed throughout include tips that add depth of knowledge, technique and history. -RB

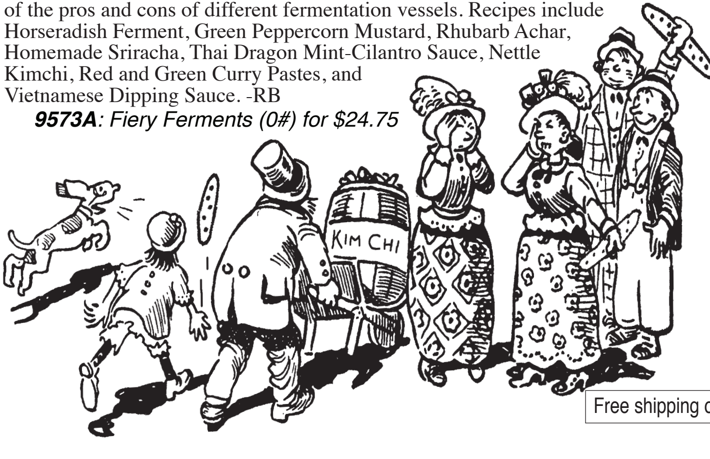
***9567A**: Fermented Vegetables (0#) for $24.75*

Field Guide to Grasses, Sedges and Rushes by Edward Knobel, 83 pages, 5$^{1}/_{2}$x8$^{1}/_{2}$, softcover. As you lean and loaf at your ease, pick up this handy guide, observe the stem and ear, and use the key to find the illustration and description. -DS

***9570A**: Field Guide to Grasses (0#) for $5.75*

Fiery Ferments:* *70 Stimulating Recipes for Hot Sauces, Spicy Chutneys, Kimchis with a Kick and Other Blazing Fermented Condiments by Kirsten K. Shockey and Christopher Shockey, 263 pages, 8x9, softcover. Not just another book about hot sauce. The Shockeys explore the origins and essence of spice and pungency with recipes from around the world, both fiery and mild, drawing on peppers and many other ingredients used before peppers traversed the globe. Presents well-written basic techniques alongside step-by-step visual guides to making pepper mash, brine-based sauces and pickles, pastes and mustards, kimchis, relishes and salads. Includes an overview of the pros and cons of different fermentation vessels. Recipes include Horseradish Ferment, Green Peppercorn Mustard, Rhubarb Achar, Homemade Sriracha, Thai Dragon Mint-Cilantro Sauce, Nettle Kimchi, Red and Green Curry Pastes, and Vietnamese Dipping Sauce. -RB

***9573A**: Fiery Ferments (0#) for $24.75*



The Food Forest Handbook:* *Design and Manage a Home-Scale Perennial Polyculture Garden by Darrell Frey & Michelle Czolba, 239 pages, 7$^{1}/_{2}$x9, softcover. Polyculture means multiple species growing together interdependently. This happens naturally in the wild. Indigenous communities cultivated ancient polyculture food forests long before monoculture. This book makes sense of modern terms like *food forest* and *permaculture* by placing them in their historical context. Before launching into how you can build your own food forest, the authors take you back in time to tour past forests around the world. Like an intermingled planting, the book’s organization runs a bit wild but the text is easy to read even as it delves into the technicalities of designing site maps. The authors seem to have left nothing out in enumerating considerations for your planning. Contains good basic instructions and sample lists for selecting, tending, growing and propagating plants for the rural or urban landscape. Attends to the power of observation and intimate connection with place as much as to the science of growing trees. -JR

***9579A**: The Food Forest Handbook (0#) for $32.75*

Forest Trees of Maine:* *Centennial Edition by the Maine Forest Service, 176 pages, 6x9, spiral-bound softcover. Mainers are familiar with the tall slim pamphlet *Forest Trees of Maine*. This expanded edition commemorated the guide’s 100th year and includes color photographs of important identification keys, historical photographs of Maine logging, and locations of Maine’s largest specimens. Sections by genus have charts listing important distinctions among species. Species descriptions follow. -DS

***9582A**: Forest Trees of Maine (0#) for $14.00*

The Fruit Forager’s Companion:* *Ferments, Desserts, Main Dishes, and More from Your Neighborhood and Beyond by Sara Bir, 400 pages, 7x10, softcover. Written by a poetic comical professional chef who knows her stuff, this book is bold, smart, witty and so fun to read! The fruits I already love take on a new life in these pages, and the ones that I would not have bothered to explore beckon to me now. On foot or bike, the author roams and forages her urban landscape and suggests that there is no place like home, and that we, too, could be out there moving, examining, noticing and falling in love with fruits growing in usual and not-so-usual corners. All-in-one field guide, history lesson, memoir and cookbook, this book is divided unequally into two parts. Bir begins with her manifesto on consumerism, food sourcing and the power of observation along with a how-to manual on foraging. Part two, the bulk of the book, dedicates each chapter to a different fruit with familiar edibles like apples and grapes alongside lesser known ones like hackberries, spicebush and sumac, with inventive recipes that are easy to follow. Beautiful photos and rich sidebars feature relevant musings with some unexpected entertaining commentary. A series of shorter plant profiles each stamped “Honorable Mention” or “Look But Don’t Eat” make for a pleasantly meandering read in a well-organized text. -JR

***9585A**: The Fruit Forager’s Companion (0#) for $28.75*

Garden Coloring Books A selection of three Dover coloring books for the budding naturalist. Enjoy coloring flowers, bugs, fruits, veggies or scenes of old-fashioned farm life. Packet of three books.

***9588A**: Garden Coloring Book Packet (0#) for $18.00*

The Greenhouse and Hoophouse Grower’s Handbook:* *Organic Vegetable Production Using Protected Culture by Andrew Mefferd, 261 pages, 8x10, softcover. Farmer, former researcher at the trial farms of our friendly neighboring seed company, and current editor and publisher of *Growing for Market* magazine, Mefferd brings his experience in protected vegetable culture to this straightforward manual for commercial growers. In 2009, Mefferd (along with most of Maine) despaired to see field-grown tomatoes succumb to late blight at first fruit. Today, he pulls thirty pounds of tomatoes off a single plant in his greenhouse! Growing under cover offers more diversity year-round for locavores and offers insurance against disruptions to the international food distribution system. For growers, up-front investment is rewarded by hugely increased yields per square foot and a hedge against cash flow rollercoasters—not to mention our increasingly vagrant weather. Mefferd opens by detailing the Dutch approach to protected culture: maximizing the use of space, managing climate, variety selection, structure type, and operational efficiency. The second half of the book offers detailed instructions for the eight crops most likely to generate a profit: four “long crops” (tomatoes, peppers, cucumbers and eggplant) and four “short crops” (lettuce, greens, microgreens and herbs). Appendices address pests and diseases, tools and supplies, and even offer a word on the bogeyman of organics—hydroponic production. -AC

***9600A**: The Greenhouse Grower’s Handbook (0#) for $29.75*

Seed Cleaning.

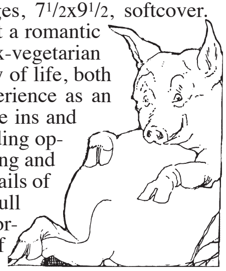
Growing Garden Seeds: A Manual for Gardeners and Small Farmers by Robert Johnston, Jr., 32 pages, 5½x8½, softcover. If you are new to seed saving, this little manual by the founder of Johnny's covers all the basics and is the best place to start. First published in 1976, it is a classic.

***9609A**: Growing Garden Seeds (0#) for $6.00*

Growing Great Garlic by Ron L. Engeland, 213 pages, 6x9, softcover. Varietal descriptions, history, and in-depth cultural information on growing, harvesting, storing and marketing garlic. The chapter on pests and diseases has practical suggestions for minimizing and containing the damage.

***9612A**: Growing Great Garlic (0#) for $16.75*

Happy Pigs Taste Better: A Complete Guide to Organic and Humane -Based Pork Production by Alice Percy, 272 pages, 7½x9½, softcover. Make no mistake. The correlation in the title is not a romantic one. And it could have been chosen only by an ex-vegetarian with an excellent palate. This book is about quality of life, both for pig and farmer. Speaking from ten years experience as an organic hog farmer, Fedco's own Alice presents the ins and outs of everything from feed sources, housing/bedding options and fencing styles, to marketing, record keeping and staying sane. Comprehensive with all necessary details of humane and organic swine life on the farm, also full of useful and sometimes surprising scientific information. (Want to know the optimal micron size of ground feed to prevent gastric ulcers? It's in here!) In *Happy Pigs*, you will read about macro issues like maintaining soil quality and the importance of financial literacy, while learning specific skills such as recognizing ancestral pig behavior, devising appropriate and holistic rations, diagnosing mysterious health conditions, humane and low-stress slaughter at home, and more. Comes with charts and templates for those who do their homework. A must for all beginners in the world of swine. -AA **NEW!**



***9613A**: Happy Pigs Taste Better (0#) for $26.75*

The Hidden Life of Trees: What They Feel, How They Communicate by Peter Wohlleben, 288 pages, 5⅓x7½, hardcover. Are trees conscious, sentient beings? Groundbreaking scientific research is clouding the space between yes and no. In evolution, we were "split off from vegetation very early on," so science has had to work a little harder to understand our plant friends. This is the lens through which the writer has come to better understand the tree community he manages as forester in the Eifel Mountains of Germany. The questions Wohlleben asks are simple 5th-grade science class topics but the answers run as deep as the mystery he briefly illuminates for us, and our imaginations are sparked by how little we know about the invisible world. Wohlleben uses current research to support what might otherwise sound outlandish. He emphatically anthropomorphizes trees to drive home the point that they can indeed "feel" and communicate using light, electrical impulses, sound waves and mycelial networks. The entwined life stories of the forest trees, insects, fungi and bacteria held in this book will cause you to pause in awe after each short chapter. This beautiful book is for everyone. -JR

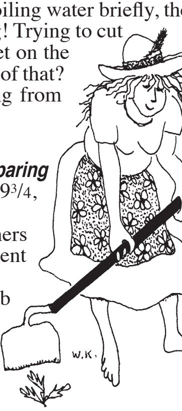
***9618A**: The Hidden Life of Trees (0#) for $24.25*

The Holistic Orchard: Tree Fruits and Berries the Biological Way by Michael Phillips, 414 pages, 8x10, softcover. Written by the renowned New Hampshire–based orchardist and author of *The Apple Grower*, this book could be called the Encyclopedia of Orcharding for the 21st Century. Reminiscent of the great old Rodale books, it covers a wide range of fruit crops, while addressing orchard design, dynamics and horticulture in unparalleled detail. It's all here: pruning, planting, companion planting, spraying, not spraying. (See our **8657** Holistic Orchard Spray Kit.) Phillips brings his extensive background in organic orcharding, along with wisdom: "A holistic grower knows that producing healthy fruit is not about manipulating nature, but about supporting a balanced orchard ecosystem." Whether you're new at this or an old-timer, you will want a copy at hand this winter. The only other reading you will need, of course, is the latest Fedco Trees catalog. -JB

***9624A**: The Holistic Orchard (0#) for $36.75*

Homegrown Pantry: A Gardener's Guide to Selecting the Best Varieties & Planting the Perfect Amounts for What You Want to Eat Year-Round by Barbara Pleasant, 328 pages. 8x10, softcover. For your veggies, fruits and culinary herbs, don't you wish you had a guidebook full of growing instructions and tips (like those found in Fedco catalogs)? For plotting your gardens each season, wouldn't you welcome a resource that suggests how much to plant per person? When you have produce that is ready to harvest, wouldn't you benefit from a manual that indicates which preservation method best suits each crop? Thanks to Barbara Pleasant, you can have it all in one book. She writes, "This is precisely the information I needed but did not have when I started food gardening in a serious way." Contains simple time-saving strategies to manage your harvests. Freezing sweet corn? She suggests using the center of a bundt pan to hold an ear upright and catch the kernels as you cut them off. Brilliant! Prepping tons of garlic? Plunge cloves in boiling water briefly, then cool over ice to get the peels to release. Life-changing! Trying to cut through super-hard winter squash safely? Tap a mallet on the back of your sturdiest chef's knife. Why didn't I think of that? For anyone wanting to get more serious about eating from your garden year-round. -JPR

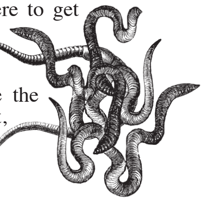
***9630A**: Homegrown Pantry (0#) for $22.75*



How to Move Like a Gardener: Planting and Preparing Medicines from Plants by Deb Soule, 244 pages, 6¾x9¾, softcover. "As you cultivate the garden, the garden is cultivating you, both inwardly and outwardly. Gardeners are shaped, pruned and informed by the garden, moment by moment, day by day, month by month and year by year." What a gift from herbalist and wise woman Deb Soule! Way beyond food, flowers or medicine, Deb's gardening is spiritual practice, mindful rhythms in harmony with all living souls. She unlocks the mysteries of biodynamics as no one ever has before. And, oh!, the incomparable photographs harmonize with her crystalline prose in a work of pure love and devotion. -CR

***9636A**: How to Move Like a Gardener (0#) for $32.75*

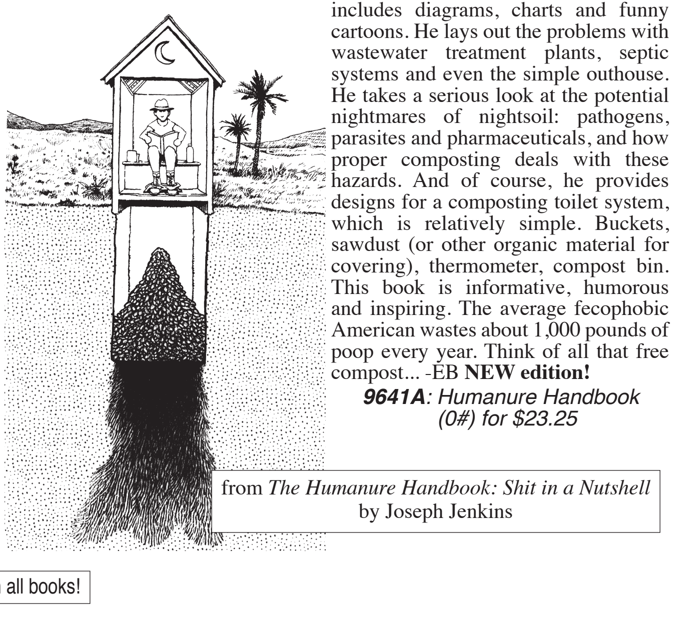
How to Start a Worm Bin: Your Guide to Getting Started with Worm Composting by Henry Owen, 95 pages, 9x6, softcover. The subtitle says it all—simple, clear instructions for worm composting. Dispells fears about odors and pests, tells how to start, what's needed, where to get worms, how to calculate what amounts and sizes you'll need, what to feed the worms, how to provide bedding, assesses equipment currently available, gives troubleshooting tips, and tells how to harvest and use the valuable compost. The book begins with praise of compost, hardly necessary for this audience, and a helpful account of the red wigglers themselves. Outdoor bins generally need warmer climates than ours but, take heart: the author has a worm bin under his desk at work! -SK



***9639A**: How to Start a Worm Bin (0#) for $9.75*

The Humanure Handbook: Shit in a Nutshell, 4th edition, by Joseph Jenkins, 300 pages, 6x9, softcover. In the opening words to his first edition, Jenkins wrote: "The world is divided into two categories of people: those who shit in the drinking water and those who don't. We in the Western world are in the former class." Now in its fourth edition, this self-published classic has sold more than 70,000 copies and been translated into 19 languages. Drawing from 40 years experience turning poop into compost, Jenkins makes the case for closing the fertility loop by making humanure hygienically safe and suitable for growing food, instead of flushing away this valuable commodity and polluting our water supply. Comprehensive yet readable, the handbook looks at disposal of human excrement from all angles: historical, anthropological, scientific, psychological and environmental, and includes diagrams, charts and funny cartoons. He lays out the problems with wastewater treatment plants, septic systems and even the simple outhouse. He takes a serious look at the potential nightmares of nightsoil: pathogens, parasites and pharmaceuticals, and how proper composting deals with these hazards. And of course, he provides designs for a composting toilet system, which is relatively simple. Buckets, sawdust (or other organic material for covering), thermometer, compost bin. This book is informative, humorous and inspiring. The average fecophobic American wastes about 1,000 pounds of poop every year. Think of all that free compost... -EB **NEW edition!**

***9641A**: Humanure Handbook (0#) for $23.25*



from *The Humanure Handbook: Shit in a Nutshell* by Joseph Jenkins

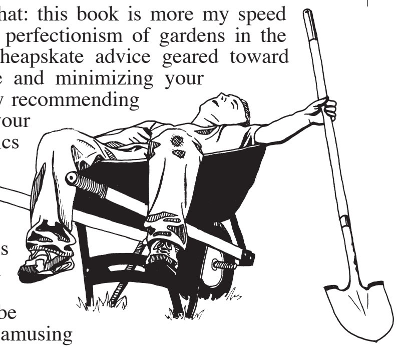
Identifying Diseases of Vegetables by A.A. McNab, A.F. Sherf and K.K. Springer, 62 pages, 8½x11, spiral-bound softcover. Excellent photographs facilitate accurate disease identification. Includes all the popular vegetables and the common diseases that affect them.

***9642A**: Identifying Diseases of Vegetables (0#) for $26.00*

Incredible Wild Edibles: 36 plants that can change your life by Sam Thayer, 480 pages, 6x9, softcover. Sam Thayer's foraging books are in a league of their own. No other gives such insightful accounts of edible wild plant species, and the writing is captivating. I've read and re-read chapters in his books (*Forager's Harvest*, *Nature's Garden*) like one would a favorite collection of stories. For some of us, the excitement around the release of this third volume in his series was akin to that of the latest Harry Potter, though the magical world Thayer brings to life is not imaginary—it can be experienced. Each of Thayer's books stands alone, with no overlap of the plants covered. In this new volume, an exciting selection of foods awaits you out there: greens, berries, shoots, roots, bulbs, nuts, seeds, tree fruit, sap, flowers, and more. He describes each plant in detail: what it looks like, where to find it, when and how to harvest it, and how best to prepare it for consumption. With clear photos of the plants' edible portion(s), as well as of non-edible "look-similars," you can ID with confidence. Thayer's books will help you engage with the landscape in a new way. In this third volume, I appreciate his essays that challenge our assumptions (about foraging, agriculture, nature, civilization) and conclude with a vision of hope for the future of food production. -JPR

***9644A**: Incredible Wild Edibles (0#) for $22.75*

Lazy-Ass Gardening: Maximize Your Soil; Minimize Your Toil by Robert Kourik, 240 pages, 8½x11, softcover. In my twenties, I put in my days of stacking 700 bales of hay into the barn in 95° heat with a six-month-old strapped to my back. I am *so* over that: this book is more my speed now. Kourik eschews the unrealistic perfectionism of gardens in the media for experienced, utilitarian, cheapskate advice geared toward maximizing your gardening pleasure and minimizing your gardening pain. He starts the book by recommending you consider where you will nap in your garden! Other slightly less lazy topics include how to get the most out of plant selection, tillage (or no-till) options, compost, water management, tools, pruning and pest control. All written in Kourik's signature cheeky style ("Use an old golf bag to hold long-handled tools… of course, you'll probably have to be your own caddie") and studded with amusing anecdotes ("I met a gardener years ago who worked at the CIA. He brought home shredded government secrets to mulch his vegetables.") Kourik lives in Zone 9 California, so not all his variety recommendations will work in the North, but most of his advice travels well. If you prefer napping to wrestling with weeds—and honestly, who doesn't?—his book is for you. -AC **NEW!**



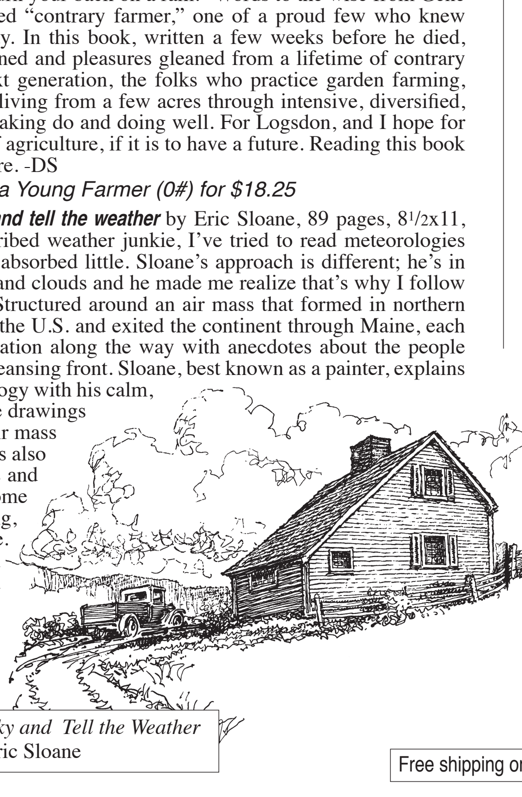
***9647A**: Lazy-Ass Gardening (0#) for $24.75*

Letter to a Young Farmer: How to Live Richly without Wealth on the New Garden Farm by Gene Logsdon, 210 pages, 5¾x8¾, hardcover. "Stay small and stay in." "Never turn your back on a ram." Words to the wise from Gene Logsdon, self-described "contrary farmer," one of a proud few who knew there was a better way. In this book, written a few weeks before he died, he passes lessons learned and pleasures gleaned from a lifetime of contrary farming on to the next generation, the folks who practice garden farming, who strive to make a living from a few acres through intensive, diversified, organic agriculture, making do and doing well. For Logsdon, and I hope for us, this is the future of agriculture, if it is to have a future. Reading this book is a bittersweet pleasure. -DS

***9654A**: Letter to a Young Farmer (0#) for $18.25*

Look at the Sky...and tell the weather by Eric Sloane, 89 pages, 8½x11, softcover. A self-described weather junkie, I've tried to read meteorologies for the layperson and absorbed little. Sloane's approach is different; he's in love with the air, sky and clouds and he made me realize that's why I follow weather obsessively. Structured around an air mass that formed in northern Canada, swept across the U.S. and exited the continent through Maine, each chapter is set in a location along the way with anecdotes about the people affected by the cold cleansing front. Sloane, best known as a painter, explains a lot of basic meteorology with his calm, precise and lovely line drawings illustrating what the air mass did in each place. He is also a plain writer of yarns and tales, some funny, some poignant, all engaging, which enchanted me. CR called it "a total delight." I concur. -SK

***9657A**: Look at the Sky (0#) for $11.00*

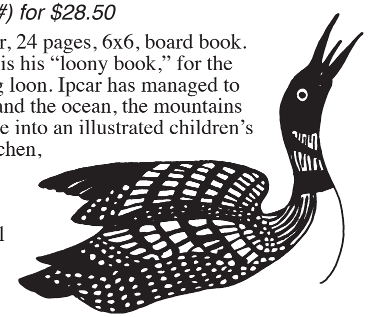


from *Look at the Sky and Tell the Weather* by Eric Sloane

The Lost Kitchen: Recipes and a Good Life Found in Freedom, Maine by Erin French, 256 pages, 7½x10, hardcover. In April 2017 when the Lost Kitchen restaurant opened its phone lines to accept reservations for the 2017 season, the phone system in Freedom shut down, overwhelmed by the calls. With this cookbook, those of us fortunate enough to have found a place at one of Erin French's tables can relive that experience. But you needn't have visited the restaurant to enjoy poring over these recipes, straightforward but not ordinary, and to cook yourself some wonderful meals. Every recipe has an ingredient that made me pause and say, "Wow, I never thought of using that." They don't demand hours of meticulous fussing with foams and emulsions and tiny tweezers; just loving attention to the freshest, often foraged, ingredients. The book is organized by season with recipes for all parts of a meal. Mouth-watering photos of the food interspersed with dreamy photos of Maine round out this feast for the eyes and palate. -DS

***9660A**: The Lost Kitchen (0#) for $28.50*

Maine Alphabet by Dahlov Ipcar, 24 pages, 6x6, board book. When Sami was three, he called this his "loony book," for the beautiful cover picture of a singing loon. Ipcar has managed to fit the diversity of life, the woods and the ocean, the mountains and the rivers of her beloved Maine into an illustrated children's alphabet that rhymes. "K is for kitchen, what's in the pot? L is for lobster, served up hot!" The yellow raincoats, the cookstove, the cat, the old wooden lobster traps are all painted in Ipcar's unmistakable style. As with most of her children's books, Dahlov Ipcar captured the very essence of living in Maine, this time from A to Z. A small board book for small hands -AA



from *Maine Alphabet* by Dahlov Ipcar

***9663A**: Maine Alphabet (0#) for $11.00*

The Market Gardener: A Successful Grower's Handbook for Small-scale Organic Farming by Jean-Martin Fortier, 240 pages, 8½x8½, softcover. Quebecois market gardener Jean-Martin Fortier and his wife earn their living by growing CSA shares for more than 200 families on just 1½ acres. A decade's experience in small-scale farming informs Fortier's practical and clear-eyed book: while he touches on the complex issues around soil biology, fertility, and pest control, his focus is on showing small farmers how to get their job done efficiently and profitably, while upholding the ecological principles of organic agriculture. The overall tone is that of a knowledgeable and enthusiastic mentor. -AC

***9669A**: The Market Gardener (0#) for $20.00*

Mycorrhizal Planet: How Symbiotic Fungi Work with Roots to Support Plant Health and Build Soil Fertility by Michael Phillips, 256 pages, 8x10, hardcover. "Investing in species diversity begins underground," says the orchard revolutionary. He's alluding, of course, to the microbes and, most dearly, to mycorrhizal fungi. Phillips cultivates a fungal awareness by exposing just how deeply embedded mycorrhizal fungi are in plant physiology and in all healthy soils. You'll enjoy plenty of scientific detail, but the real gems are the three chapters that offer practical knowledge and a variety of regenerative practices—from mulches to cover crops, from the broad fork to the no-till crimper, from hedgerows to forest-edge orcharding. The Nondisturbance Principle guides the mycorrhizal steward in the garden, farm or orchard toward revamping fungal networks to restore soils, put away some carbon and begin to understand the dynamics of our future. This book will leave a subtle taste of hope on the palate, as do most mushrooms. -AA

***9675A**: Mycorrhizal Planet (0#) for $36.75*

Natural Therapies for Overcoming Opioid Dependency: Control Pain and Recover from Addiction by Dr. Catherine Browne, 240 pages, 6x9, softcover. Thanks in no small part to predatory marketing by Purdue Pharma, the manufacturer of Oxycontin, the Sackler family has amassed billions of dollars in private wealth while millions of Americans sit trapped by opioid addiction and at least 130 die of opioid overdose daily. Conventional treatments for opioid addiction rely on other addictive substances and have high recidivism rates. Browne recommends Traditional Chinese Medicine (TCM) as an alternative and complementary approach. The book includes an overview of TCM; profiles of 32 herbs, 20 essential oils, and 5 flower essences useful in the treatment of opioid addiction; whole foods therapy and nutritional supplementation; treatment protocols and complex herbal formulas for both acute withdrawal symptoms and long-term health problems resulting from addiction; and alternate approaches to treating trauma and pain management. She takes a holistic attitude, acknowledging the strengths and weaknesses of both TCM and western medicine, and while there is plenty of non-clinical talk about "energy work" and the "vibrational levels" of plant medicines, she shores up her case with an admirable bibliography of contemporary research supporting the treatments she recommends. Empathetic, practical, and detailed, she takes a wide view of addiction, acknowledging the myriad physical, social, emotional, and spiritual factors and the array of complications that arise in battling and conquering opioid addiction. The book would likely be useful to people battling other substance dependencies or psychological challenges as well.–AC **NEW!**

***9682A**: Overcoming Opioid Dependency (0#) for $14.75*

Free shipping on all books!

The New Livestock Farmer: The Business of Raising and Selling Ethical Meat by Rebecca Thistlethwaite and Jim Dunlop, 312 pages, 7½x9½, softcover. I sniff suspiciously at any single volume that claims to cover such broad and complicated territory as this book's subtitle promises to deliver. How to raise chickens, turkeys, waterfowl, hogs, cattle, small ruminants, rabbits, bison, elk, and deer—and how to market them while keeping on the government's good side? I condemned this book before I opened it for luring aspiring livestock farmers with bright promises and insufficient information. Well, Thistlethwaite and Dunlop astonished me. No, this book doesn't have everything you need to know about all these subjects, but they don't waste a word in 300 pages. As an experienced and opinionated hog producer, I found little to quibble with in their chapter on pigs and was impressed by the thoroughness achieved in such a short space. The sections on legal considerations and marketing are clear-eyed, humorous and founded on good business sense. Highly recommended for the entry-level farmer, and probably useful to those with a few years' experience, too! -AC

***9684A**: The New Livestock Farmer (0#) for $28.00*

The New Organic Grower 30th Anniversary Edition, by Eliot Coleman, 304 pages, 8x10, softcover. As a teenager, I was always listening to Pearl Jam's *Ten*, and as a new farmer I was always reading *The New Organic Grower*. My cassette eventually broke, and my book is now so stained with coffee and potting mix that it's practically unreadable. It's a great time to be alive, though, because *Ten* is easily streamable, and Coleman's classic book has been reissued in a fully revised and updated 30th anniversary edition. A trailblazer and wise elder of the organic farming movement, Coleman famously turned some once depleted fields on the coast of Maine into vibrant productive farmland. Distilling his decades of experience and boundless enthusiasm for farming and innovating, this book covers the whole life cycle of a farm; from searching for land; to seed selection; crop planning; seedling production; weed, pest, fertility and labor management; even harvesting and marketing. And this is no mere reprint: he never stops experimenting, and his advice has been updated with details on new tools (including blueprints!) and techniques. Among the new additions are a chapter on ley farming and a section on growing flowers, as well as detailed color photos throughout the book. Coleman's clear prose is a joy to read, whether you're in the garden or on the porch. -CC

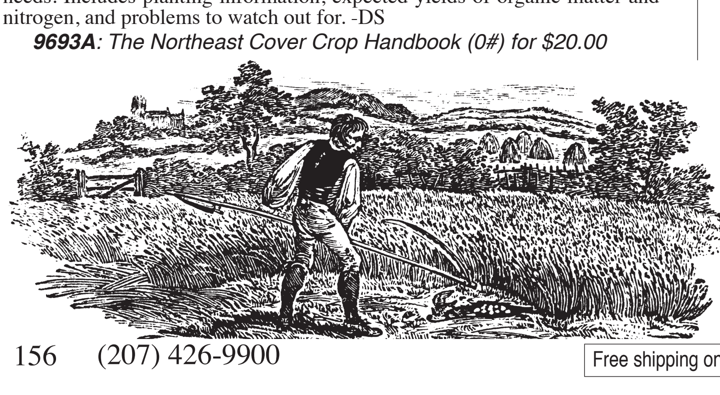
***9687A**: The New Organic Grower (0#) for $27.75*

The Noma Guide to Fermentation: Including koji, kombuchas, shoyus, misos, vinegars, garums, lacto-ferments and black fruits and vegetables by René Redzepi and David Zilber, 456 pages, 7½x10, hardcover. Fancy fare meets funky ferment in this handsome illustrated guide for advanced fermentationists and cookbook collectors. Chefs from Noma, the premier Copenhagen restaurant, built a fermentation laboratory to run imaginative bacterial experiments and the creations are beautiful, some strange, many grandiose. I found myself curiously conflicted: food should be food—nourishing, tasty, accessible—not obscure and elitist. And yet the book drew me back in: instructions for these bacterial masterpieces are easy to follow and most use common ingredients. (I applied their simple vinegar procedure to my windfall of plums.) Each recipe concludes with a narrative of creative suggested uses. (What to do with your black sludge of fermented grasshopper garum? Brush it on savory pancakes and top with a dollop of roe!) The basic methods presented could be tailored to your taste and considered points of departure. I never imagined all the directions I could take my kombucha SCOBY. And as a devotee of anything koji, I anticipate venturing into that exciting chapter this winter. Fat yet lightweight with matte color printing, the book pleases as an object, and regardless of how many recipes you make, you'll have plenty of fun reading. -EB

***9690A**: The Noma Guide to Fermentation (0#) for $35.75*

The Northeast Cover Crop Handbook by Marianne Sarrantonio, 118 pages, 8½x11, spiral-bound softcover. This useful guide and resource is designed to help farmers in the Northeast find the best cover crops for their needs. Includes planting information, expected yields of organic matter and nitrogen, and problems to watch out for. -DS

***9693A**: The Northeast Cover Crop Handbook (0#) for $20.00*



Northeast Foraging: 120 wild and flavorful edibles from beach plums to wineberries by Leda Meredith, 308 pages, 6½x9, softcover. Seeking affordable culinary adventures? Planning an edible scavenger hunt? Preparing for end times? This glossy guide to foraging leads a seasonal edible tour through meadows, woods, along the seashores and into urban areas of the northeast. With this book as your companion, a stroll through your neighborhood can feel like a journey to an exotic market, where some things will certainly be more delicious than others but everything is worth a taste. Each of the 120 plant descriptions is accompanied by a good color photo and essential tips for harvesting, preparing and preserving the wild food, as well as thoughtful information for sustainable harvest of each plant. Meredith approaches foraging creatively and ethically as she helps us to see the abundance that awaits. -EB

***9696A**: Northeast Foraging (0#) for $24.50*

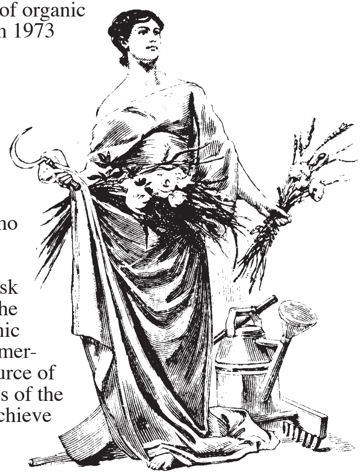
One Horse Farm by Dahlov Ipcar, 36 pages, 9x10¼, hardcover. A sweet story about a draft horse and a boy, born the same day on a farm. Ipcar based this story and its iconic paintings on her own experiences farming and raising a family in Maine. Gentle, beautiful and a little sad, this book will please readers of all ages. -EB

***9699A**: One Horse Farm (0#) for $18.50*

Organic Field Crop Handbook Canadian Organic Growers, 292 pages, 9½x8, softcover. Starting with the general principles of organic production, the first sections discuss how to improve soil fertility, increase biodiversity and recycle resources, while farming productively. Gives sample crop rotations for different kinds of farms and a worksheet for determining the appropriate rotation for your farm. Covers when and how to plant specific crops, the nutrient requirements for each, weed and pest management, harvesting and cleaning, expected yield of seed and straw, the place of each in a good rotation, and suggestions for intercropping and overseeding. Although written for Canadian growers, all the information applies south of the border. They've even converted from metric to English units. -DS

***9702A**: Organic Field Crop Handbook (0#) for $44.75*

Organic Revolutionary: A Memoir of the Movement for Real Food, Planetary Healing, and Human Liberation by Grace Gershuny, 262 pages, 6x9, softcover. The tight-knit world of organic agriculture was even more so back in 1973 when Gershuny headed for the hills of Vermont and quickly imbedded herself in the organic community there. Gershuny had a hand in the founding of NOFA, the founding of the OTA, the development of the NOP, and more; she speaks of these important developments, and of the other organic movers and shakers who helped to mold them, from a deeply personal perspective. But the book transcends gossip column status to ask important ongoing questions about the organic movement. Should the organic standards be consumer-driven or farmer-driven? Should they focus on the source of inputs or on the ecological soundness of the practices? Can organic agriculture achieve mainstream status without hanging its principles out to dry? Whether you like Gershuny's answers to these questions or not, you'll enjoy the conversation. -AC



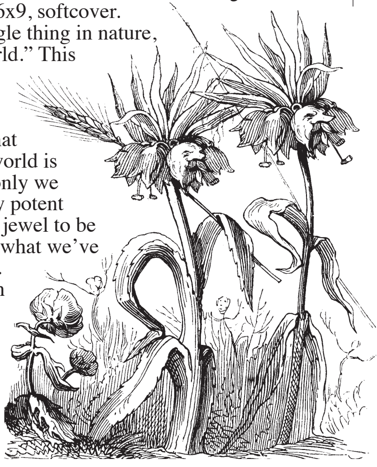
***9708A**: Organic Revolutionary (0#) for $15.50*

Our Native Bees: North America's Endangered Pollinators and the Fight to Save Them by Paige Embry, 224 pages, 6½x9, hardcover. We all know honeybees are in trouble from colony collapse, varroa mites, neonicotinoids and overwork. Bumblebee populations have been dwindling, perhaps because of diseases introduced from Europe when greenhouse tomato growers tried to use commercially raised bumblebees as pollinators. But this book is not merely a chronicle of collapse; it is, more importantly, a celebration of the diversity of bees. Embry takes us on a tour of Crown Bees in Washington where Dave Hunter is raising blue orchard bees, *Osmia lignaria*, for sale to the orchards of the Northwest as an alternative to honeybees. She takes us to the bee lawn at U Minn created by Mary Meyer and Marla Spivak, although created may be too strong a word—they've taken a step back to the days before people thought a lawn was just grass and the chemical industry found a way to get rid of their surplus poison by convincing people clover was an unwelcome weed. She introduces us to some of the many species bees, the hard-working pollinators without whom we would all go hungry. For anyone who has ever sat and watched as the bees buzz, the photographs alone make this a necessary book. -DS

***9711A**: Our Native Bees (0#) for $25.50*

Permaculture for the Rest of Us:* *Abundant Living on Less than an Acre by Jenni Blackmore, 179 pages, 6x9, softcover. This title intrigued me, as I consider myself to be among "the rest of us." I'm not thrilled by the idea of mapping my landscape or measuring anything when it comes to planting: skip-the-directions-and-dig-in is more my style. I liked this book. It's not a bit stuck-up. In fact, it's easy to forget that the author is a certified permaculture consultant because it's so darn practical. Blackmore has real dirt on her hands. She turned a one-acre dumpy wind-swept seaside plot in Nova Scotia into a thriving mini-farm. The writing is humble, conversational and funny. This book reads more like a novella than a manual, but you can easily skip around to the chapters you like best. The topics are extremely basic (but important!) and probably best suited to newer gardeners and to anyone taking the plunge into homesteading. -JR

***9717A**: Permaculture for the Rest of Us (0#) for $19.25*



Plant Intelligence and the Imaginal Realm:* *Into the Dreaming of Earth by Stephen Harrod Buhner, 564 pages, 6x9, softcover. John Muir said "When one tugs at a single thing in nature, he finds it attached to the rest of the world." This book is proof of that simple truth. A consumate storyteller and synthesizer, Buhner juxtaposes concepts, quotations and experience in a call-and-response that builds a deeper understanding that the world is alive and is communicating with us, if only we would listen. The result is a marvelously potent work of art and science, a multi-faceted jewel to be read slowly and savored, a challenge to what we've been taught about how the world works. Weaving hard science with ancient myth and poetic wisdom, Buhner prods us to open our understanding to the wonders of how the exquisitely balanced interplay of plants and animals and earth manifests all around us. A perfect accompaniment for the winter hibernation of gestating dreams. Buhner weaves a tale destined to alter our perceptions. -NK

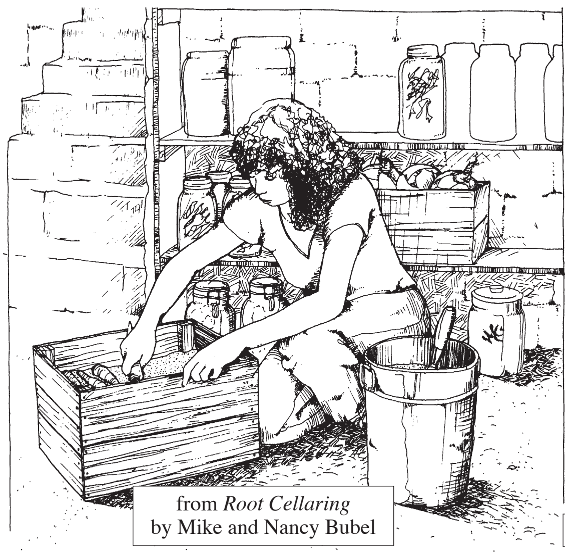
***9720A**: Plant Intelligence and the Imaginal Realm (0#) for $25.00*

Preserving with Pomona's Pectin:* *The Revolutionary Low-Sugar, High-Flavor Method for Crafting and Canning Jams, Jellies, Conserves, and More by Allison Carrol Duffy and the Partners at Pomona's Universal Pectin, 176 pages, 7$^{1}/_{2}$x9$^{1}/_{4}$, softcover. We won't get in the habit of offering a book that promotes a product, but when 4 out of 5 Fedco staffers said they will use only Pomona's to make jam and jelly, we decided to give this book a whirl. One of Maine's very own food-preservation experts, Duffy creates an easy-to-follow recipe book using Pomona's Universal Pectin. Traditional pectins require boatloads of sugar to form a jell—Pomona's jells with no added sugar, allowing you to preserve your harvest with low- or no-sugar recipes. From your grandad who wants his plums left plain, to your sister-in-law who eats only herbs for breakfast, this book has something for everyone. With delicious simple classics like strawberry preserves, to more fanciful and savory flavors like lavender jelly, strawberry-balsamic jelly, or savory blueberry-ginger conserve (with onions), there's a recipe to please every palate. -LC

***9723A**: Preserving With Pomona's Pectin (0#) for $23.75*

Root Cellaring by Mike and Nancy Bubel, 2nd edition, 297 pages, 6x9, softcover. A good root cellar provides a "direct, earthy and deeply satisfying connection between our summer efforts in the garden and our winter need for fresh wholesome food." Let the Bubels take you on a well-illustrated tour of root cellar designs. They can also help with varietal selection, best storage conditions and recipes. -CR

***9735A**: Root Cellaring (0#) for $15.00*



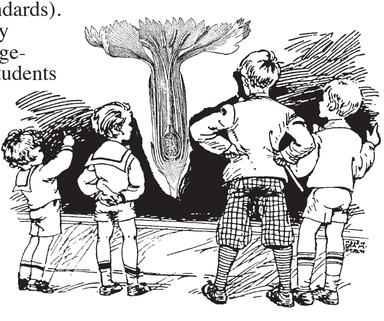
from *Root Cellaring*
by Mike and Nancy Bubel

Rosemary Gladstar's Medicinal Herbs:* *A Beginner's Guide by Rosemary Gladstar, 224 pages, 7$^{1}/_{4}$x9, softcover. Stressing self-reliance, "Know, grow, use" is this book's mantra. Written by a practicing herbalist in Vermont, it provides an overview of herbal medicine, outlines 33 well-known and widely grown and used herbs and spices. Includes 124 photo-enhanced recipes for tinctures, teas, salves, syrups, oils, infusions and more. A beginning herbalist can easily set up an apothecary in the kitchen and stock the medicine chest with this book as a guide. -HC

***9741A**: Rosemary Gladstar's Medicinal Herbs (0#) for $15.00*

Sacred Instructions:* *Indigenous Wisdom for Living Spirit-Based Change by Sherri Mitchell, 256 pages, 5$^{1}/_{2}$x8$^{1}/_{2}$, softcover. Every word counts in this broad yet concise book, and you'll want to savor it through the winter as you read it aloud, discuss with friends, then read it again. Grounded in the living wisdom of her own community, Penobscot activist, visionary and human rights lawyer Sherri Mitchell offers hope to those of us wrestling with who and how we are in this beautiful and hurting world. Mitchell never lectures or scolds, though she speaks with unflinching clarity. What she offers is a loving invitation to bring ourselves into harmony with the sacred instructions vibrating throughout the universe, and to gather our energy for the work that supports life. I recommend keeping several copies on hand because you'll keep giving them away. -SO

***9744A**: Sacred Instructions (0#) for $17.75*



The School Garden Curriculum: *An Integrated K–8 Guide for Discovering Science, Ecology, and Whole-Systems Thinking* by Kaci Rae Christopher, 320 pages, 8x10, softcover. My family kept a large vegetable garden when I was a child, and some of my earliest memories were formed there. Not all children are so lucky. Many grow up with no idea how a carrot ends up on the table or how a potato grows. This disconnect comes at great culinary, social, and environmental cost to society. Christopher shows how we can return traditional agricultural knowledge to a central place in education, while also meeting contemporary institutional expectations (she ties her curriculum to the Next Generation Science Standards). Her curriculum is broken down by age group, then by season, with age-appropriate activities that teach students about botany, ecology, and social interaction while keeping their bodies active and instilling the permaculture principles of "Care for Self, Care for Others, Care for the Land." Sample activities include "Gardener's Math" (a first-grade activity teaching measurements, estimates, and the recording of data), "Cafeteria Waste Audit" (a fourth-graders study food waste and explore vermicomposting), and "Food Preservation" (a pickling workshop for eight-graders). She advocates for interactive, consistent student participation rather than isolated activities that lose sight of the whole process from seed to table. Not just for professional educators: this book contains a wealth of ideas for homeschooling, or for adults who want to share the gardening experience with the children in their lives. -AC **NEW!**

***9746A**: School Garden Curriculum (0#) for $32.50*

Seed to Seed by Suzanne Ashworth, 2nd edition, 240 pages, 8$^{1}/_{2}$x11, softcover. Considered the classic reference with detailed instructions on seed saving techniques and spectacular photographs. This is the book our seed growers use. -CR

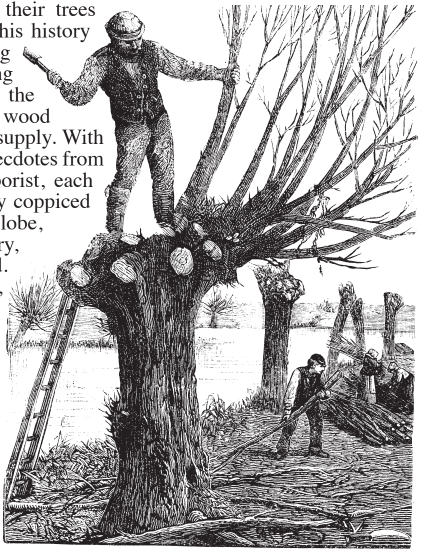
***9756A**: Seed to Seed (0#) for $24.25*

Silvopasture:* *A Guide to Managing Grazing Animals, Forage Crops, and Trees in a Temperate Farm Ecosystem by Steve Gabriel, 320 pages, 8x10, softcover. The dominant culture of food production today forces us to separate the interdependent features of our ecosystems, erecting borders between elements that really belong together. We think of the forest as forest and the field as field. We regard species only in terms of their short-term usefulness to us and only if they conform to our obsessive technologies. Practice of silvopasture pushes against that dominant culture by integrating trees and perennial forages into a multi-layered grazing system. This approach to land use for rearing livestock builds diversity (both "wild" and domesticated), density and resilience while greatly aiding in much-needed carbon sequestration. Steve Gabriel assembles as thorough a guide to silvopasture as one can expect. Myriad examples include the age-old dehesa system in Spain where pigs feast on acorns; sheep browsing young honey locust at Gabriel's own farm; ducks foraging and fertilizing young fruit orchards. Drawing on lessons from forest and grassland ecologies, *Silvopasture* proposes a farm ecology that rediscovers the wisdom of those who lived before the loss of the Commons. -AA

***9762A**: Silvopasture (0#) for $35.25*

Free shipping on all books!

Sprout Lands:* *Tending the Endless Gift of Trees by William Bryant Logan, 384 pages, 6$^1/_2$x9$^1/_2$, hardcover. "Once…no place could prosper without its inhabitants knowing how to cut their trees so they would sprout again." In this history of the tradition of managing woodlands with the art of coppicing and pollarding, Logan recounts the myriad uses of small-diameter wood when it's cultivated for perpetual supply. With detailed historical accounts and anecdotes from the author's own work as an arborist, each chapter delves into a different way coppiced wood has been used across the globe, from England to the Basque country, Japan to California, and beyond. Wherever there are hardwood trees, there can be perpetual availability of materials for hedges, livestock feed, fenceposts, garden stakes and even bridges. You will be inspired to look into your own yard or woods for sustainable alternatives to conventional building materials that, if managed properly, will replenish themselves year after year. -JM **NEW!**

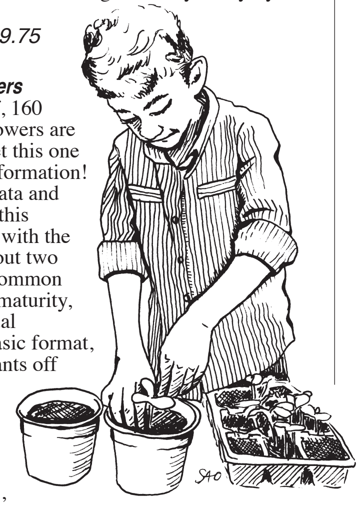


***9765A**: Sprout Lands (0#) for $26.25*

Start Your Farm:* *The Authoritative Guide to Becoming a Sustainable 21st-Century Farmer by Forrest Pritchard and Ellen Polishuk, 272 pages, 6$^1/_4$x8$^1/_2$, softcover. This is a book about how to farm. It doesn't tell you how to transplant tomatoes, or milk a cow, but that information is available from many sources. Instead, it exhorts aspiring farmers to think long, hard, and above all realistically about the very real challenges (and rewards!) of starting and maintaining a small to mid-sized farm, drawing on the experience of a 7th-generation farmer from the Shenandoah Valley (Pritchard) and a 1st-generation farmer from the mid-Atlantic (Polishuk). The word 'holistic' does not do justice to their experienced and clear-eyed pragmatism. They are unapologetic about the need to balance all three pillars (economic, environmental, and social) of true sustainability. As Polishuk observes, "many farmers seemingly have an allergy to the concept of profit." Many farmers also sacrifice their social and family lives on the altar of their farming dreams. To help beginners see their dreams of pastured poultry and nutrient-dense broccoli through from their internship to their retirement, Pritchard and Polishuk cover education, land access, marketing, record-keeping, understanding profits, and maintaining healthy relationships in the context of the small-farm business. Should be required reading for every starry-eyed WWOOFer and apprentice out there. -AC

***9768A**: Start Your Farm (0#) for $19.75*

Starting and Saving Seeds:* *Grow the Perfect Vegetables, Fruits, Herbs and Flowers for Your Garden by Julie Thompson-Adolf, 160 pages, 8$^3/_4$x10$^1/_2$ hardcover. Herbs and flowers are given short shrift in seed-saving books, yet this one devotes 52 pages of to this hard-to-find information! Kudos to the author for ferreting out the data and sharing it in a clear and simple format. In this book, the mechanism of pollination along with the required isolation distance is given for about two dozen herbs and many more of the most common flower families—along with keys to seed maturity, processing tips and seed viability. The usual vegetables are also covered in the same basic format, which also includes tips for getting the plants off to a good start. A practical introduction to starting seeds is followed by the basics of seed saving, including harvesting and processing techniques. For someone just getting started with growing plants who wants to develop a relationship with seeds, this is the perfect beginning book. -NK **NEW!**



***9770A**: Starting and Saving Seed (0#) for $24.75*

Stella★Natura:* *2020 Biodynamic Planting Calendar edited by Sherry Wildfeuer, 40 pages, 9x12, softcover. "Inspiration and practical advice for gardeners and professional growers." Contains lunar and astronomical charts correlated with planting data that many of our customers find valuable, along with interesting articles and essays each year.

***9771A**: Stella★Natura (0#) for $17.00*

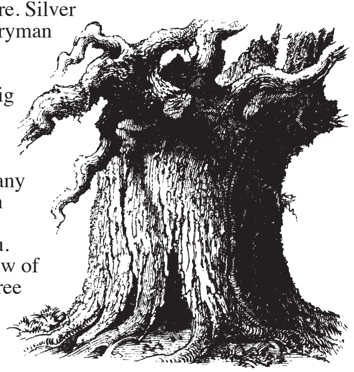
Teaming with Fungi:* *The Organic Grower's Guide to Mycorrhizae by Jeff Lowenfels, 172 pages, 6x9, hardcover. This book brings the *Teaming* trilogy to a close. As in the first two *Teaming* books, Lowenfels delves into biology to provide an in-depth understanding of the lives of mycorrhizal fungi. A captivating read for those who'd like to learn more about chitin, hydrophobins, glomalin, polyphosphates and all the different types of mychorrhizae and their wondrous cellular dance with plant roots. Deflating old myths and presenting recent revelations, Lowenfels lays out the case for the critical importance of mycorrhizae in agriculture, horticulture, silviculture and even hydroponics before explaining how mycorrhizal partners can be introduced and maintained, including making mycorrhizal inoculant at home. In a growing tide of awareness about mycorrhizal grandeur, this is a solid resource for anyone dealing with plants. -AA

***9777A**: Teaming with Fungi (0#) for $25.00*

To Fell a Tree: A Complete Guide to Successful Tree Felling and Woodcutting Methods by Jeff Jepson, 166 pages, 6x9, softcover. Timberrr! Crrack! Is there a more satisfying sound than that made by a newly felled tree landing exactly how and where you wanted it? This well-illustrated manual will show you how to achieve that perfect result—safely—time after time. -CR

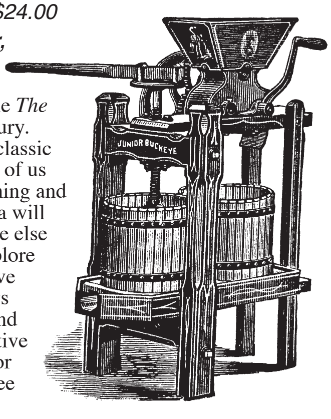
***9789A**: To Fell a Tree (0#) for $18.50*

Trees of Power:* *Ten Essential Arboreal Allies by Akiva Silver, 274 pages, 6x9, softcover. I'm not sure if this book would be with the gardening books or on the self-help shelf in a bookstore. Silver is a thoughtful optimist-realist-nurseryman with a clear knack for motivational speaking, inspiring us to wake up, listen, take time for self-reflection, dig deeper for a little more compassion, use our best tool—common sense—and focus on what we can actually do. In other words, be like a tree! Many people can plant a tree; everyone can love a tree. If you're doing either, both…or neither, this book is for you. Part 1 "Life Fountains" is an overview of the author's philosophy, an intro to tree identification, planting, propagation and a path forward. Cut through the slog of environmental woes by engaging in sound simple cultivation practices that are good for the soil and will keep you busy and away from drowning in your own complaints. Part 2 "The Allies" profiles ten prominent trees: Chestnut, Apple, Poplar, Ash, Mulberry, Elderberry, Hickory, Hazelnut, Black Locust and Beech, each chapter including a bit of historical background, synopsis of species within the genera, value for humans and wildlife, cultivation, and commercial possibilities. I personally love each one of these trees. Akiva has written a book on behalf of all of us out there loving this life-path of filling the world with more trees. Trees are our partners on this planet and together we can create the world we want. Plant on! -JR **NEW!**



***9790A**: Trees of Power (0#) for $24.00*

Uncultivated:* *Wild Apples, Real Cider, and the Complicated Art of Making a Living by Andy Brennan, 274 pages, 6x9, hardcover. This book could become *The One-Straw Revolution* for the 21st century. Forty years ago, Masanobu Fukuoka's classic helped define the thinking of thousands of us searching for a new way to look at farming and the world. Every cidermaker in America will want to read *Uncultivated*, and everyone else should, too. Not only does Brennan explore the questions facing those of us who love to grow and squeeze apples, he also digs deeply into language, art, economics, and life in general. *Uncultivated* is provocative and fun. Whether you're a cidermaker or not, read this book. It's a One Apple Tree Revolution. -JB **NEW!**



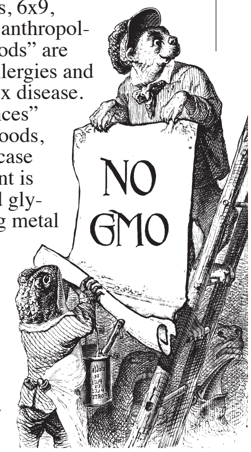
***9791A**: Uncultivated: Wild Apples (0#) for $24.75*

Understanding Roots:* *Discover How to Make Your Garden Flourish by Robert Kourik, 225 pages, 8$^1/_2$x11, softcover. Soil yearns for roots. In fact, plant roots define soil and, to a great extent, control the soil ecology. Kourik tells us why and how, as he takes us on an expedition into the complex world of the plant brain—its roots. Rich with painstaking root drawings of a great variety of plants and in-depth accounts of the latest scientific findings about the habits of plants and root growth. It presents new insights into the effects of root systems on soil structure and nutrient layering, the chemical wizardry of root exudates, the subvisible lives of soil microbes and their relationships with plant roots (including a chapter dedicated to the wondrous mycorrhizae). Full of tips on transplanting, irrigation and no-till practices, such as sheet-mulching and biodrilling, to make you a better gardener and a better steward of your soil. Also features appendices on phytoremediation and allelopathy. Kourik says this is not a revised edition of his previous best-seller *Roots Demystified*—it is a stand-alone book. -AA

***9795A**: Understanding Roots (0#) for $24.50*

Vegetable Gardening for Organic and Biodynamic Growers:* *Home and Market Gardeners by Joel Morrow, 389 pages, 7x10, softcover. Not your run-of-the-mill gardening book; herein lies the biographies of more than 70 vegetables. Yes, 'biography' is the word—not mere profiles or sketches, these are intimate introductions gleaned from decades of observation and experience in the garden. Joel Morrow loves plants, their origins, their culture, and wants them to succeed, so he shares his vast expertise. He includes biodynamic recommendations that are easy to follow, along with horticultural, nutritional and ecological information. But the charm of this book is that it's as if you were sitting with a sociable old codger reminiscing about gardens. Which is not to say he rambles—the advice is fairly concise, while considering each vegetable "a work of art, a journey, a rite of passage" and so the conversation spirals outward into new perspectives. This winter as you dream up your spring garden, keep this book on your nightstand. -NK

***9798A**: Vegetable Gardening for OG & BD Growers (0#) for $28.00*



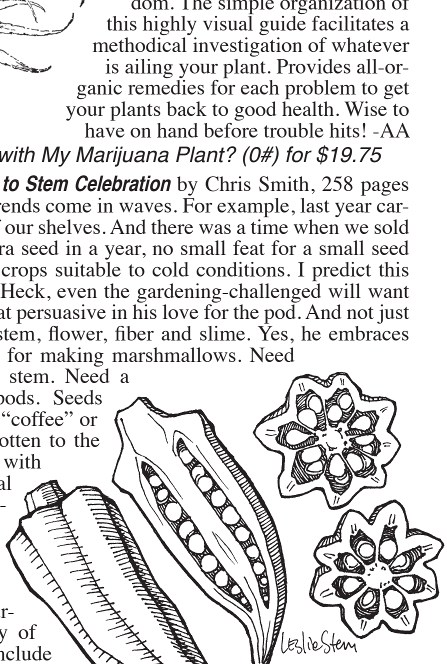
What's Making Our Children Sick?:* *How Industrial Food Is Causing an Epidemic of Chronic Illness, and What Parents (and Doctors) Can Do About It by Dr. Michelle Perro and Vincanne Adams, 272 pages, 6x9, softcover. A veteran pediatrician teamed with a medical anthropologist make the case that a prior generation's "healthy foods" are now making our kids sick—40% of our children have allergies and 10% of infants under a year have gastroesophageal reflux disease. And these are not Michael Pollen's "edible food substances" with empty calories and lots of carbohydrates, but real foods, like eggs and milk and nuts. What's changed? Through case studies and clear scientific follow-through, the indictment is against industrial food and, most notably, GM foods and glyphosate (RoundUp), whose original use was for cleaning metal pipes. We may have clean foods in terms of microbial pathogens, but we have dirty foods in terms of chemical load. This, combined with environmental toxicants, creates an overload in our bodies, and especially in young bodies, that is hard to discharge. Many of us know this yet hold a well-informed passivity that stems from a sense of futility. But we must galvanize to protect our children, who are under threat. This book is well poised to launch us into the necessary action to create a healthy food environment. -NK (This year we feature Nikos' essay on glyphosate; see page 106.)

***9810A**: What's Making Our Children Sick? (0#) for $24.25*

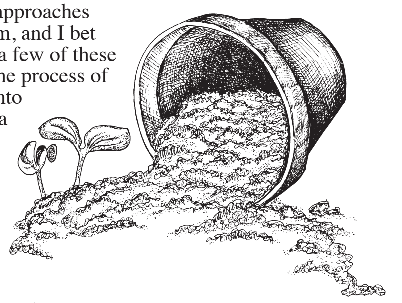
What's Wrong with My Marijuana Plant?:* *A Cannabis Grower's Visual Guide to Easy Diagnosis and Organic Remedies by David Deardorff and Kathryn Wadsworth, 192 pages, 7$^{1}/_{2}$x9$^{1}/_{3}$, softcover. The only book dedicated to a single species in the widely popular "What's wrong with my …." series. And for a good reason. Cannabis seems to be a very attractive host to a variety of pests and diseases. This book removes the guesswork and checks your neighbors' wisdom. The simple organization of this highly visual guide facilitates a methodical investigation of whatever is ailing your plant. Provides all-organic remedies for each problem to get your plants back to good health. Wise to have on hand before trouble hits! -AA

***9813A**: What's Wrong with My Marijuana Plant? (0#) for $19.75*

The Whole Okra: *A Seed to Stem Celebration* by Chris Smith, 258 pages 7x10, softcover. Seed sales trends come in waves. For example, last year caraway and luffa seeds flew off our shelves. And there was a time when we sold upwards of 40 pounds of okra seed in a year, no small feat for a small seed company that specializes in crops suitable to cold conditions. I predict this book will revive okra sales. Heck, even the gardening-challenged will want to plant okra; the author is that persuasive in his love for the pod. And not just the pod, but the leaf, seed, stem, flower, fiber and slime. Yes, he embraces the slime as a cosmetic and for making marshmallows. Need a compostable straw? Okra stem. Need a holiday ornament? Dried pods. Seeds alone can make tempeh, oil, "coffee" or flour. And we haven't yet gotten to the pods, which are highlighted with a great variety of traditional and innovative recipes, complete with mouthwatering photographs and engaging informative stories. The final section describes how best to grow a crop for yourself. Smith's diverse display of 60 varieties doesn't even include Cajun Jewel—there's a whole world of okra out there to explore. This book is your invitation. –NK **NEW!**



***9815A**: The Whole Okra (0#) for $28.50*



Will Bonsall's Essential Guide to Radical, Self-Reliant Gardening:* *Innovative Techniques for Growing Vegetables, Grains and Perennial Food Crops with Minimal Fossil Fuel and Animal Inputs by Will Bonsall, 400 pages, 8x10, softcover. As a former apprentice of Will's, I assumed his book would be a nostalgic journey but not especially enlightening. I couldn't have been more wrong. There are enough gardening philosophies and techniques in this book to keep anybody learning for many seasons to come. The product of more than 40 years experience, this book doesn't waste time on the basics. Instead, Will focuses on the approaches unique to his subsistence farm, and I bet you'll want to try more than a few of these innovations. Will has taken the process of composting and "turned it" into an art form. Based on his idea of "eco-efficiency," Will shares wisdom about seed propagation, farm system design, growing staple crops like grains and oilseeds, and food processing. Plus, his incurable wit makes this one of the most entertaining agricultural texts you'll ever read. -JPR

***9819A**: Will Bonsall's Essential Guide (0#) for $31.75*

The Year-Round Solar Greenhouse:* *How to Design and Build a Net-Zero Energy Greenhouse by Lindsey Schiller with Marc Plinke, 307 pages, 7$^{1}/_{4}$x8$^{3}/_{4}$, softcover. Is it worth the coal burned to generate the electricity to grow a tomato in Maine in February instead of trucking it in from Florida? Should we even eat tomatoes in Maine in February, or should we virtuously resign ourselves to months of turnips, boredom, and scurvy? As greenhouses gain popularity as season extenders, they have earned some backlash for their energy-hungry need for supplemental heating and lighting. But what if we can have our tomatoes and our virtue, too? Schiller and Plinke show how to minimize greenhouse energy use both through basic good planning (siting, orientation, proper materials selection, good insulation) and through more advanced techniques. Also includes information on solar hot water, rocket mass stoves and compost heaters, as well as aquaponic and hydroponic systems. -AC

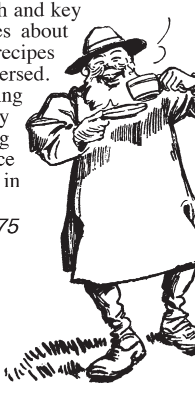
***9828A**: The Year-Round Solar Greenhouse (0#) for $28.25*

You and I Eat the Same:* *On the Countless Ways Food and Cooking Connect Us to One Another edited by Chris Ying, 216 pages, 6$^{1}/_{2}$x9$^{1}/_{2}$, softcover. Whether you are an avid recipe hunter or an ur-foodie, you probably hunger not just for flavor but for story. This unique collection of ethno-culinary investigations reveals the common threads running through our diverse cooking traditions. Chapter titles speak for themselves: "Everybody wraps meat in flatbread." "Your fire and my fire burn the same." "There is no such thing as a nonethnic restaurant." Diverging from the notion of culinary difference, this book brings together stories and histories of food and people from around the world in the light of their archetypal and incidental similarities. In your travels you will find Mennonites making cheese in Mexico, a Nashvillian serving fried chicken in Australia, a Nepalese steaming momos in San Fransisco, along with curious histories of sesame seeds, soy sauce and even curry. Chris Yang in his introduction makes it clear: "Deliciousness is an undeniable benefit of immigration. When people move around, food gets better." Cherish the beautiful center-fold photographs of leaf-wrapped foods from around the world, but don't expect recipes. -AA

***9831A**: You and I Eat the Same (0#) for $19.75*

Your Brain on Plants:* *Improve the Way You Think and Feel with Safe—and Proven—Medicinal Plants and Herbs by Nicolette Perry and Elaine Perry, 243 pages, 7x9, softcover. Published in the UK as *Botanical Brain Balms*. We all know that the brain and nervous system have an enormous effect on health and well-being. Herbalists know that plants contain multiple active components that work together, and differently, from single pharmaceutical extracts. Now, two PhD scientists have compiled attractive and accessible profiles for 56 plants grouped by Calming Balms, Cognition Boosters, Blues Busters, Sleep Promoters, Pain Relievers, Energizers, Mind Altering Plants, and Panaceas. General notes, discussing many additional plants, begin each section. Each plant profile has an illustration and description of the plant and its traditional uses, followed by scientific research and key chemical ingredients. Each concludes with notes about how to take the plant and its safety. Sidebars with recipes and practices to promote well-being are interspersed. The book concludes with many resources including a glossary, a good index and thorough bibliography of all the studies cited for each plant. A beginning herbalist would probably want another resource along with this book, but I think anyone interested in plant medicine will enjoy it. -SK **NEW!**

***9834A**: Your Brain on Plants (0#) for $16.75*



> Thank you for sharing your interesting stories, bizarrely awesome artwork, and unique varieties of seeds. To another year of healthy crops and nutritious food!
> – Marc Cavatorta, Ipswich, MA

Free shipping on all books!

Order online at fedcoseeds.com

Division	Products	Find on pages	Schedule	Shipping Charges	Pickups
Seeds items 200–5999	vegetable, herb and flower seed	pages 5-105 order form pg 161	Daily shipping begins Jan 2, 2020. Twice-a-week shipping begins in May. No shipping Nov. 1 –Jan. 1. Backorders shipped thoughout the season, finishing by late March. Crops needing an early start are shipped ASAP.	Free for all orders $30 and over. Under $30, pay $6 shipping charge. We ship to Canada: internet orders only, shipping charges apply.	We send a confirmation email or postcard when your order is ready. Warehouse is open Tues, Weds, Thurs from 9:00 –3:00.
Potatoes, Onions & Exotics items 7000–7999	seed potatoes, onion sets & plants, ginger, turmeric, sweet potato slips	pages 110-116 order form pg 163	Order ginger, turmeric by Feb 24; all other products by April 6. Limited inventory & 50#-bag potato clearance after April 6. Ginger, turmeric ship in March. Potatoes, onions, sweet potato slips begin shipping in April.	See chart on order form, page 163. For lower prices, consider depot shipping, details pg 166.	Pick up at the Tree Sale, 9:00 –3:00, May 1 and 2, or May 8 and 9. We will send a confirmation email or postcard.
Organic Growers Supply (OGS) items 8000–9999	farm seed, soil amendments, tools, supplies, books	pages 118-159 order form pg 165	We ship year-round!	See chart on order form, page 165. Items with 0# weight ship for free. For lower prices, consider depot shipping, details pg 166.	We send a confirmation email or postcard when your order is ready. Warehouse is open Tues, Weds, Thurs from 9:00 –3:00

Directions for All Three Paper Order Forms:

• Please use a current catalog.

Prices, item numbers and availability change!

Need a current catalog? Call (207) 426-9900.

• Please use the correct order form.

• You may send in separate forms from more than one division at the same time and pay with one check. Figure totals for each division on its proper form, then add division totals to figure grand total.

• We will charge your **credit card** when we receive your order. We will send you a bill or a refund for any adjustments as each order is completed.

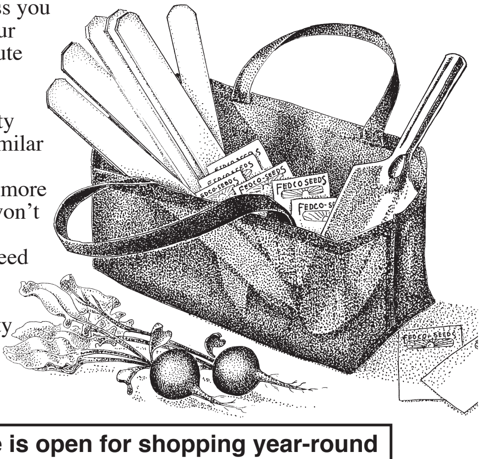
• **Please subtotal each column** and total your order. That helps us check our order-entry accuracy.

• **Sales Tax:** Orders shipped to Maine addresses and all pickup customers pay 5.5% sales tax on all products. Because of the Supreme Court decision in June 2018, we must collect local taxes in states that require us to do so. States affected are listed on the order form. *Farms and retailers:* please send us a copy of your state resale certificate or farm exemption. Otherwise we must charge sales tax.

• **Shipping:** We ship by UPS or Priority Mail, our choice, based on weight. Orders over 300#, consider a truck shipment, details on page 166.
Shipping to Alaska & Hawaii is all by Priority Mail.

Substitution policy: Unless you decline substitutions on your order form, we will substitute for items that we cannot supply:

- We will substitute a variety of the same kind and similar season.
- If we have to substitute a more expensive variety, we won't charge you more.
- If we run out of organic seed we will substitute high-quality conventional seed for the same variety unless you specify otherwise on your order form.



Our OGS warehouse is open for shopping year-round
Seed warehouse is open January–October

Tuesday, Wednesday and Thursday from 9:00–3:00
(Exceptions posted on our website.)

We are also open for shopping during the **Tree Sale**, Friday and Saturday, May 1 and 2 for customers who have already placed orders, and May 8 and 9 for the general public. Times all days are 9:00–3:00.

Save with volume discounts and group ordering!

Volume Discounts	
subtotals $100 and over	take 5% off
$300 and over	take 10% off
$600 and over	take 15% off
$1200 and over	take 20% off

Please note: Discounts apply to each division separately. You may not combine subtotals from different divisions for larger discounts.

Additional orders over $50 qualify for prior (or largest) discount if they are being shipped to the same address.

Additional discounts:

Potatoes: if your order is over 1000#, download or call for our bulk price list.

OGS: if your order is over $2500, call for a quote. Also see our rolling discount program, page 109. Additional 5% Early Bird discount (OGS only) for orders placed in December 2019 and shipped or picked up by Jan. 10, 2020.

Group Ordering:

Team up with friends and neighbors to earn higher discounts!

We will pull and package each group member's order separately and ship all to one address. Discounts apply to one order form, combined totals.

We accept group orders online. Group coordinators can find details at our website. Go to "About Ordering" and click on "Group Ordering."

Or use the mail and bundle individual orders with a summary form for each division with address info and totals. Please keep copies.

To prepare a summary form for paper orders:

- Attach a separate summary page for each division (Seeds, Potatoes, OGS, Trees). Use an order form with no items on it, supply name and address for where we will ship the order, and totals information.
- A summary form without individual totals is acceptable.
- Please use one method of payment for each division order. You may combine totals for all divisions and send one check.
- We treat all add-ons as additional orders.

Group coordinators' responsibilities:

- Collect individual orders and payments from group members.
- Make sure each item of each individual order is on proper form. Add up order subtotals for each division.
- Keep track of individual payments and settle with group members after the final shipment.
- Bundle orders for each division with a summary and one payment and send to us.
- Receive and distribute back-ordered items.
- Send us corrections for any errors.

big & little Orders
ORDERS
ORDERS
ARE
ALWAYS WELCOME

Fedco Seeds 2020

PO Box 520 Clinton, ME 04927

Final order deadline:
October 31, 2020

Check up-to-date product availability, view photos and order online at **fedcoseeds.com**.

(From mailing label) CC-

Farm or Group Name

Name

US Mail Delivery Address

Town St Zip

UPS Delivery Address

Town St Zip

Phone

Email

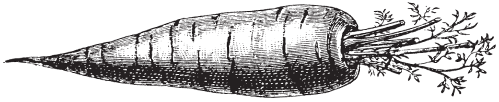
Substitution Options (see p. 160):

Yes No
☐ ☐ Will you accept substitutions?
☐ ☐ Will you accept conventional for organic seed?

Delivery Options (choose one):

- ☐ **UPS/Priority Mail**
- ☐ **Pickup**

We accept payment by card, gift certificate, check and money order (payable to Fedco).



Order items 200-5999, pages 5-103 (Please use pen, *not* pencil.)

	Item #	Size	Qty	Variety Name	Total Price		Item #	Size	Qty	Variety Name	Total Price
ex	*3993*	*A*	*2*	*Example Item*	*0.00*	17					
1						18					
2						19					
3						20					
4						21					
5						22					
6						23					
7						24					
8						25					
9						26					
10						27					
11						28					
12						29					
13						30					
14						31					
15						32					
16						33					
				Total						**Total**	

Help Support Nibezun!

You can choose to donate your refund to the Nibezun Project. (See p. 4)

- ☐ Donate all my refund to Nibezun
- ☐ Donate up to $5.00
- ☐ Donate up to $2.00

Volume Discounts:

Subtotals $100 and over	take 5% off
$300 and over	take 10% off
$600 and over	take 15% off
$1200 and over	take 20% off

Shipping Charges:

Adj Total under $30	$6.00
Pickups and Adj Total ≥ $30	FREE

Sales Tax:

ME addresses and all pickups	- Pay 5.5% sales tax on Adjusted Total
MD, VA	- Pay your local tax rate on Adj Total
IL, IN, KS, KY, MI, MN, NC, NJ, NY, PA, RI, VT, WI, WV	- Pay your local tax rate on Adj Total plus Shipping

Pg 161 Total	
Pg 162 Total	+
Subtotal	=
Volume Discount	–
1% Fedco Member Discount from Subtotal (see p. 107)	–
Adjusted Total	=
Shipping	+
Sales Tax	+
Order Total	=
Donate to Organic Farm School (see p. 93)	+
Grand Total	=

We accept Visa, MasterCard, American Express and Discover Card. Exp. Date

Fedco Seeds 2020: items 200-5999, pages 5-103 only

	Item #	Size	Qty	Variety Name	Total Price		Item #	Size	Qty	Variety Name	Total Price
34						78					
35						79					
36						80					
37						81					
38						82					
39						83					
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70						114					
71						115					
72						116					
73						117					
74						118					
75						119					
76						120					
77						121					
				Total						**Total**	
										Pg 162 Total	

Potatoes, Onions & Exotics 2020

PO Box 520 Clinton, ME 04927

Exotics (p. 111) deadline:
February 24, 2020
Final order deadline:
April 6, 2020

Check up-to-date product availability, view photos and order online at **fedcoseeds.com**.

(From mailing label) CC-

Farm or Group Name

Name

US Mail Delivery Address

Town St Zip

UPS Delivery Address

Town St Zip

Phone

Email

Substitution Options (see p. 109):

Yes No
☐ ☐ Will you accept substitutions?
☐ ☐ Will you accept conventional for organic seed?

Delivery Options (choose one):

- ☐ **UPS**
- ☐ **Tree Sale Pickup**
- ☐ **Common Carrier** for delivery by tractor-trailer. Be sure to include a daytime phone number or email. Choose week for shipment:
  - ☐ Mar 30-Apr 3
  - ☐ April 13-17
  - ☐ April 6-10
  - ☐ April 20-24

Additional charge for straight truck or lift-gate. Email alice@fedcoseeds.com for a quote.

Order items 7000-7999, pages 110-116

	Item #	Size	Qty	Item Name	Weight Each	Total Weight	Price Each	Total Price
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Pg 163 Wt		**Pg 163 Total**	
Pg 164 Wt	+	**Pg 164 Total**	+
Total Wt	=	**Subtotal**	=

Volume Discount –

1% Fedco Member Discount from Subtotal (see p. 107) –

Adjusted Total =

Shipping: if no weight, no charge, otherwise use chart below +

Sales Tax +

Donate to Scatterseed (see p. 116) +

Grand Total =

Help Support Scatterseed!

You can choose to donate your refund to the Scatterseed Project. (See p. 116)

- ☐ Donate all my refund to Scatterseed
- ☐ Donate up to $5.00
- ☐ Donate up to $2.00

Volume Discounts:

Subtotals $100 and over	take 5% off
$300 and over	take 10% off
$600 and over	take 15% off
$1200 and over	take 20% off

If you order over 1000 lbs, download or call for our bulk price list.

Sales Tax:

ME addresses and all pickups	- Pay 5.5% sales tax on Adjusted Total
MD, VA	- Pay your local tax rate on Adj Total
IL, IN, KS, KY, MI, MN, NC, NJ, NY, PA, RI, VT, WI, WV	- Pay your local tax rate on Adj Total plus Shipping

Order weight: → ↓ Zip code begins with:	more than 0 up to 2 lbs.	up to 5 lbs.	up to 10 lbs.	up to 15 lbs.	up to 20 lbs.	up to 25 lbs.	up to 30 lbs.	up to 35 lbs.	up to 45 lbs.	up to 200 lbs.	up to 500 lbs.	over 500 lbs.
038-049	8.50	13.80	15.00	19.40	21.90	23.10	24.30	24.50	25.50	56¢/lb	47¢/lb	43¢/lb
010-037, 050-069, 119-136	8.50	14.30	16.70	19.40	22.10	23.70	24.70	27.30	28.80	65¢/lb	57¢/lb	50¢/lb
004-005, 070-118, 137-232	8.50	15.20	17.00	19.40	22.10	24.40	26.80	28.10	30.70	71¢/lb	57¢/lb	52¢/lb
233-298, 400-499, 600-619	8.50	15.80	18.30	21.50	25.50	27.30	32.60	33.80	35.50	82¢/lb	70¢/lb	57¢/lb
299-399, 500-574, 620-687	8.50	16.10	19.00	23.20	28.30	32.40	37.30	41.00	42.60	99¢/lb	87¢/lb	67¢/lb
575-599, 688-778	8.50	16.70	21.20	26.70	34.00	38.50	43.60	46.60	48.30	1.13/lb	87¢/lb	74¢/lb
779-961, 970-994	8.50	17.60	24.60	28.30	35.60	41.50	48.30	49.10	54.30	1.27/lb	1.05/lb	83¢/lb
AK & HI	8.50	17.60	24.60	28.30	35.60	41.50	48.30	57.10	63.90	2.07/lb	2.04/lb	

For larger orders, consider Common Carrier. Up to 2000 lbs:

ME	$100.00
MA, RI	$110.00
VT, NH	$115.00
CT	$125.00
NY (not NYC & LI)	$200.00
NJ, PA	$175.00

For other locations email **alice@fedcoseeds.com** for more information.

We accept Visa, MasterCard, American Express and Discover Card. Exp. Date

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐ ☐☐

We accept payment by card, gift certificate, check and money order (payable to Fedco).

Potatoes, Onions & Exotics 2020: items 7000-7999, pages 110-116 only

	Item #	Size	Qty	Item Name	Weight Each	Total Weight	Price Each	Total Price
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					Pg 164 Wt		**Pg 164 Total**	

Organic Growers Supply 2020

PO Box 520 Clinton, ME 04927

OGS Early Bird Discount cutoff: **December 31, 2019** Final order deadline: **None!**	Check up-to-date product availability, view photos and order online at **fedcoseeds.com**.

(From mailing label) CC-

Farm or Group Name

Name

US Mail Delivery Address

Town St Zip

UPS Delivery Address

Town St Zip

Phone

Email

Delivery Options:

- ☐ **UPS/Priority Mail**
- ☐ **Pickup on** ____________ (date)
- ☐ **Tree Sale Pickup** (order by 4/24)
- ☐ **Common Carrier** for delivery by tractor-trailer. Be sure to include a daytime phone number or email.

*Additional charge for straight truck or lift-gate. Email **alice@fedcoseeds.com** for a quote.*

We accept payment by card, gift certificate, check and money order (payable to Fedco).

Organic Growers Supply: Items 8000 and up, pages 118-159

	Item #	Size	Qty	Item Name	Weight Each	Total Weight	Price Each	Total Price
1								
2								
3								
4								
5								
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12								

OGS Early Bird Discount:	Volume Discounts:
Order by December 31, 2019, for delivery or pickup before January 11, 2020, and take an additional 5% discount. *(Does not apply to bulk pricing.)*	Subtotals $100 and over take 5% off $300 and over take 10% off $600 and over take 15% off $1200 and over take 20% off $2500 and over *please call*

Pg 165 Wt		**Pg 165 Total**	
Pg 166 Wt	+	**Pg 166 Total**	+
Total Wt	=	**Subtotal**	=
		Volume Discount	–
		1% Fedco Member Discount from Subtotal (see p. 107)	–
		Adjusted Total	=
		Shipping: if no weight, no charge, otherwise use chart below	+
		Sales Tax	+
		Donate to MOFGA (see p. 141)	+
		Grand Total	=

Help Support MOFGA!

You can choose to donate your refund to MOFGA. (See p. 141)

- ☐ Donate all my refund to MOFGA
- ☐ Donate up to $5.00
- ☐ Donate up to $2.00

Sales Tax:

ME addresses and all pickups	-	Pay 5.5% sales tax on Adjusted Total
MD, VA	-	Pay your local tax rate on Adj Total
IL, IN, KS, KY, MI, MN, NC, NJ, NY, PA, RI, VT, WI, WV	-	Pay your local tax rate on Adj Total plus Shipping

Order weight: **Zip code begins with:**	**more than 0 up to 2 lbs.**	**up to 5 lbs.**	**up to 10 lbs.**	**up to 15 lbs.**	**up to 20 lbs.**	**up to 25 lbs.**	**up to 30 lbs.**	**up to 35 lbs.**	**up to 45 lbs.**	**up to 200 lbs.**	**up to 500 lbs.**	**over 500 lbs.**
038-049	8.50	13.80	15.00	19.40	21.90	23.10	24.30	24.50	25.50	56¢/lb	47¢/lb	43¢/lb
010-037, 050-069, 119-136	8.50	14.30	16.70	19.40	22.10	23.70	24.70	27.30	28.80	65¢/lb	57¢/lb	50¢/lb
004-005, 070-118, 137-232	8.50	15.20	17.00	19.40	22.10	24.40	26.80	28.10	30.70	71¢/lb	57¢/lb	52¢/lb
233-298, 400-499, 600-619	8.50	15.80	18.30	21.50	25.50	27.30	32.60	33.80	35.50	82¢/lb	70¢/lb	57¢/lb
299-399, 500-574, 620-687	8.50	16.10	19.00	23.20	28.30	32.40	37.30	41.00	42.60	99¢/lb	87¢/lb	67¢/lb
575-599, 688-778	8.50	16.70	21.20	26.70	34.00	38.50	43.60	46.60	48.30	1.13/lb	87¢/lb	74¢/lb
779-961, 970-994	8.50	17.60	24.60	28.30	35.60	41.50	48.30	49.10	54.30	1.27/lb	1.05/lb	83¢/lb
AK & HI	8.50	17.60	24.60	28.30	35.60	41.50	48.30	57.10	63.90	2.07/lb	2.04/lb	

For larger orders, consider Common Carrier. Up to 2000 lbs:

ME	$100.00
MA, RI	$110.00
VT, NH	$115.00
CT	$125.00
NY (not NYC & LI)	$200.00
NJ, PA	$175.00

For other locations email **alice@fedcoseeds.com** for more information.

We accept Visa, MasterCard, American Express and Discover Card.

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Exp. Date ☐☐ ☐☐

Organic Growers Supply 2020: items 8000 and up, pages 118-159 only

	Item #	Size	Qty	Item Name	Weight Each	Total Weight	Price Each	Total Price
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								
32								
33								
34								
35								
36								
					Pg 166 Wt		**Pg 166 Total**	

Save on Shipping with Depot Pickup!

Want to order some rock powders or a sack of potatoes, but find the cost of shipping prohibitively expensive? Never fear—shipping depots are here!

We can ship full pallets of goods at much lower per-pound rates than UPS packages, but few customers order hundreds of pounds at a time. We have farms and storefronts throughout the Northeast lined up to accept monthly pallet shipments of Growers Supply goods so our customers can pick up their orders close to home at shipping costs up to 80% lower than UPS rates.

- Potato orders ship to depots in April.
- OGS orders can ship to most depots March-May. A few depots accept shipments only in April, when the potato orders ship. Our most popular depots also receive a September shipment. We have to adjust this schedule based on order volume and the availability of our depot coordinators. You can check currently available depots at fedcoseeds.com/ogs/depot_shipping.htm or email ogs@fedcoseeds.com
- Depot orders are accepted online only, as we need to communicate with depot customers electronically.
- We accept depot orders all winter, but depot shipments won't begin until March. During depot shipping season, each depot has a monthly order deadline; orders are generally ready to pick up within two weeks after the order deadline. Alice's mechanic says his work is "good, fast, and cheap: pick two." We do not recommend depot ordering if you are in a hurry! We will send pickup instructions when your order is ready. Your order will be stored inside and labeled clearly with your name. We ask customers to pick up their orders within a week of arrival at the depot.
- Group orders are welcome to ship to depots to double up on their savings.
- We need to collect at least 500 lb worth of orders to make a depot shipment happen. If we have to cancel a depot shipment, we will offer to rebill you for UPS shipping or to cancel and refund your order.

At press time, we had depots in these locations:

Maine (Whitefield, Woodland, Edmunds, Brunswick, Camden, Scarborough, and York);
New Hampshire (Warner);
Massachusetts (Buzzards Bay and Lanesborough);
Rhode Island (Cranston and Little Compton);
Vermont (Dummerston and Manchester);
Connecticut (Simsbury and Woodbridge),
New York (Nedrow, Oneonta and Delmar);
New Jersey (Asbury and Pennington);

Depot Shipping

state	per lb
ME	.13
MA, NH, RI, CT, VT	.14
NY, NJ	.25
minimum shipping $3.00	

There may be others available by the time you order. When you check out online and select "Ship to Depot," a current list of available depots will appear in a drop-down menu.

Truck Shipping

For orders over 300# consider delivery by freight truck. This option can save you oodles of dough, but it's not as simple as shipping with UPS. Before you ask us to ship by truck, please note the following requirements:

(1) Your road and driveway must be able to accommodate a full-sized tractor-trailer truck and allow it to turn around. Commercial truck drivers are skilled, but they are not superhuman.

(2) You must be present to accept the delivery. We ask our freight companies to contact our customers before delivery so that you know when to expect your order.

(3) You must provide equipment or labor to unload. A forklift is best, but unloading by hand is okay if you can do it in less than fifteen minutes. We can request a lift gate to lower the pallet to the ground for a fee of $50-150 depending on the carrier.

If your own location is not suitable for receiving a freight delivery, try inquiring at a local garden center or lumberyard. Such businesses may be willing to accept the delivery for you. We will need their business name, delivery address and dock hours.

We have flat rates for New England, NY, NJ & PA for pallets weighing up to 2000# (please see the chart on page 163 or 165). For a quote on deliveries outside this area or for deliveries of four or more pallets, please email ogs@fedcoseeds.com or call 207-426-8247 with your zip code and the weight of your order. If your order weighs 300-800# and you live near one of our shipping depots in the Northeast, that will probably be your cheapest option.

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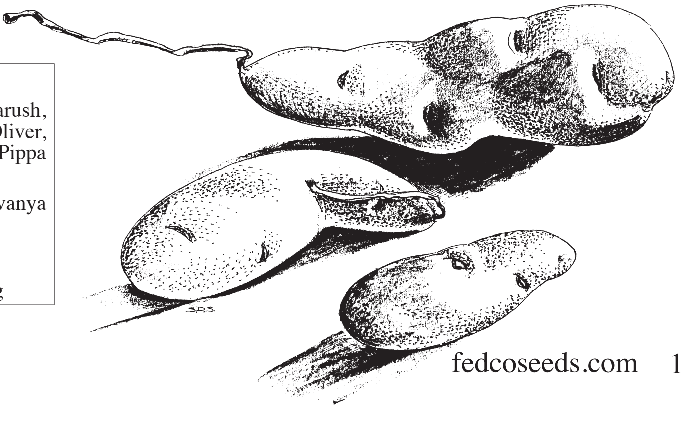

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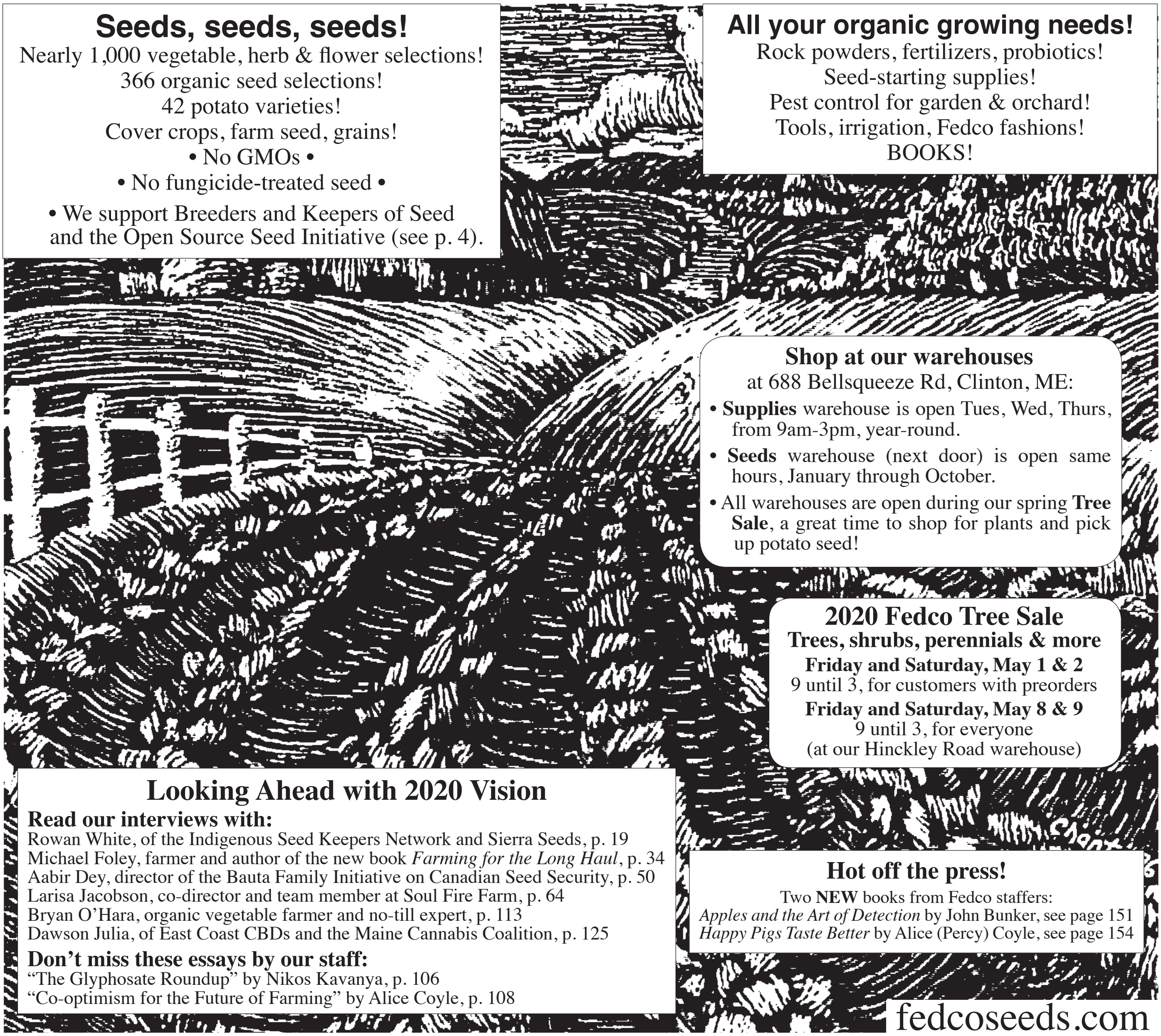

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• No fungicide-treated seed •
• We support Breeders and Keepers of Seed and the Open Source Seed Initiative (see p. 4).

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BOOKS!

Shop at our warehouses

at 688 Bellsqueeze Rd, Clinton, ME:

- **Supplies** warehouse is open Tues, Wed, Thurs, from 9am-3pm, year-round.
- **Seeds** warehouse (next door) is open same hours, January through October.
- All warehouses are open during our spring **Tree Sale**, a great time to shop for plants and pick up potato seed!

2020 Fedco Tree Sale

Trees, shrubs, perennials & more

Friday and Saturday, May 1 & 2
9 until 3, for customers with preorders
Friday and Saturday, May 8 & 9
9 until 3, for everyone
(at our Hinckley Road warehouse)

Looking Ahead with 2020 Vision

Read our interviews with:
Rowan White, of the Indigenous Seed Keepers Network and Sierra Seeds, p. 19
Michael Foley, farmer and author of the new book *Farming for the Long Haul*, p. 34
Aabir Dey, director of the Bauta Family Initiative on Canadian Seed Security, p. 50
Larisa Jacobson, co-director and team member at Soul Fire Farm, p. 64
Bryan O'Hara, organic vegetable farmer and no-till expert, p. 113
Dawson Julia, of East Coast CBDs and the Maine Cannabis Coalition, p. 125

Don't miss these essays by our staff:
"The Glyphosate Roundup" by Nikos Kavanya, p. 106
"Co-optimism for the Future of Farming" by Alice Coyle, p. 108

Hot off the press!

Two **NEW** books from Fedco staffers:
Apples and the Art of Detection by John Bunker, see page 151
Happy Pigs Taste Better by Alice (Percy) Coyle, see page 154

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